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Cosmographia
Pars 1ma
De Sphærâ Cælesti.
Proemium.

1º Sphæra vel globus est corpus solidum à cujus centro eductæ seu lineæ rectæ ad superficiem protractæ sunt omnes inter se æquales.

2º Quivis circulus per centrum sphæræ transiens, adeóque in 2 partes æquales vel segmenta æqualia dividens circulus major, et Hemisphæria vocantur.

3º Quivis circulus sphæram in partes inæquales dividens circulus minor dicitur, et contra omnes omnino æquidistans à circulo majori ci est

ē prllus: hic crcli dqaori &c drr
prlli.

4° axis sphæ ē qdlbt diamr
circa qm iūmtam spha vlvi ilgr.
—poli sphæ st pncta axis xma in
sprcie sphæ.—Poli crcli st 2 pncta
in sprcie sphæ dqr dstata à psphri
cujsvs crcli & qsi psprlia ad ejs
crru. lvns ē polos sibinvcē op
:pos ēe: r dstant ab invcē spao
semcrcli, & à crclo cujs st poli,
spao qrantij.

angls sphcus ē mtuā inclnao
2 arcuu mjris crcli: mnsra tlis
angli ē arcus mjris crcli trans
à 2 latrbs angli & dstans 90° à
pncto angli: unde ō tlē ∠ur mct
:eris, si lat, ō ōneal 90° dbet pru

MSS 229 B
RB NMAH

dne oqle sit qrnti. -

Tranglus sphcus e ps sprciei spha traa a 3 arcbs mjrus crclorus ois crclus mx, in spha trnsiens p polos altri, svè mxi svè o, divit eu bifariā & ad anglos rctos, eqq illi pprlis: & vce vrsâ crclus trnsit p polos altri, qndo e ei pprlis. - hnc si in trnglo sphco sint 2 ∠ rcti, pnctus anglre altri, angli pol. erit latris oppi, & utrumq aliorum latrum erit qrans. rarius tn o e ut crcli mxi .bcent se ad anglos rct-s, ut patebit eclpcâ, qe ad anglos pm 2 rctis oqles, o tn ad anglos rctos oqaores secat. -

5° oes crcli trnseuntes p polos

cujsvs circli tnjris eu in 2 pncty
diamcè oppis ad anglu rctu in
:secant, & vu ejsde circli tnjris dm
2arii.

6º. Planu circli vl orbitæ ē pla:
:nies qi inr ejs pphria inclsa;
sc si lea A B C D orbitam rpraret
sprcies carta inr ea lea ɔtnta
planu ejsde xheret. —

7º. Glob, 2x ē trrstris & cœlstis
Trrstris ille ē in qo ptes xtrores
trræ, ut rgioes, maria &c. delean
Cœlstis vò stellaru situ & magn
ɔstellaoes &c. ostdit. ut ā stellaru
rlvè ad invce & ad trra situs,
& alia cœlstia phona meli, xpl
Glob, trraqùe, variis circlis ind
:gnrris Circmcingi ɔcpitr, & hi cir
sphæ rnanr; sphæ armllris q

armillis ɔstris, nil hi circlos hos

repræsent.

Cum eadem figura sit rum oium facies,

sive hac sphæra fit ralem solis gyratio-

nem, vel fit apparentes explicems, hoc in

hypsi Copernicana tradams, quippe quo

asmis oibs proprius arridet

— & mihi durnas prostrictius explat artes

ut ait Card. Polignac. —

Not: Jxa Copernicanos solem oriri

occidere, here declinatione &c, adeoque oes

in coi srmone se vlgi captui accom-

dare; hoc vero & alia ubi occurrunt,

vlgr quad appreciam dxt. ✠ ✠ ✠

§. 5us

De Circulis Sphæræ.

circli hi alii fixi st, eundemque

in cœlis situm ser servant. alii mo-

mobles. scm varias spctaois poe
fxi st dqaor & eclpca c zariis &
prllis & x 2ci trro mu oriunr. —
— mbles st Hzn c zariis & prll
Crcli 1o. st. 6 mjres, dqaor, ecp
meridians, colur solstiorum, colur
dqinctiorum, & hzn. — 4 mnres. Tro
:pcus Cancri, tripcus Capricrni, c
:cli artic, & antartic. Prter hos
propuos innri alii crcli fngnr u
patebit ex dcndis.

Æqator.

ē crcl mgn, dqe dstans à
polis trro in cujs plno trra m
sw diurnu crca axi describit,
:cl hic à nautis vlgo nuncpa
y Line. si plnu hujs crcli
celos usqe xdi icpiams, celi

aeqinctiale efficit, & oa coeli sphaera, polis exceptis, vel hunc circulum velocissime perllum ab oriente versus occidentem spatio 24^h. conficere videbuntur. —

Aequator globum terrae in 2 partes Australem & Borealem dividit; axis hujus circuli, axis terrae dicitur, quia terra circa hunc vertitur singulis 24^h ab occidente versus orientem. extremitates axis poli terrae sunt e quibus alter borealis est, nempe a parte hemisphaerii borealis, alter Australis.

Astronomi circulos omnes in 360 partes aequales dividunt, quae vulgo gradus dicti sunt, quilibet gradus 60' in se continet, & quodvis 1' 60", & sic deinceps. — Per hanc divisionem aequator tunc dividitur in 24 partes aequales seu horas ita ut quaevis h. 15° contineat.

Crcli horarii

crcli immobles ducti per polos mundi & sglos qnidenos eqaoris grad, dnr horariu, qi cu terra ad unu ex illis pervenit desnit h. pri:or, incipit postror. — hnc sqr 10. 1. ce qbs eqr dvr in ptes eqles. sqi 20 cu terra pervenit ad crclu illu qi trnsit per coes sctioes eqaoris & hzntis tunc ee h. 6a. in glbo a:feli eoru vces supplet mediani & prus crcls hrari, cu indce. —

Crcli Vertcales.

Qos Arabes Azimuth vant, crcli mxi imbles, qi per lci cujsq. vrtce, qe Arabes Zenith appella & punctu huic oppu qd ci vadir dr trnscunt ad sglos grd, et m

pncta hzntis. inr hos propui st
vrtclis iaiis & meridiaus. —

Verticalis
sarius,

Hznte secat in pnctis ortûs & oc-
-cûs, i ē, ad coe sctioe hzntis & æqa-
-oris. Meridiaus.

ō tm p. Zenith & Nadir cujsq
lci, it m p polos trræ trnsit, adeoq
globu trræ in pte orintle & ocdle
dirt. hnc ubi 1ᵘ ad mdiau acc-
-ssisse vidr sol, ē mdies, qndo ò
vò ad arcu mdiai infrà hznte
mdia nox. —

x dctis olges tot ēē mdiaos
geocé (qndo qt st pncta in sm-
-circlo æqaoris. propu, mdiaus
pcu 1us & fxus statuir cotr sp
insla firi inr fortnaas, qa nnc

Canariæ vr propè Africam in
mari occdli: aut sprà insulam
Pici inr Azores in eodem mri
occdli. sepi, tn Astri 1um mrdia-
:num stiuunt sprà lcum in qo ipsi
obsvaoes sas faunt. in Globo
trrstri ordnrie ducnr mrdiani 18
ad dstaas nempè, 10°.

Cùm dqaor, ut sprà dms, 360
ôneat, trræ glb revluoem diurnam
crcà axim ab occde in orinte ità
24h spao pfecit, ut sglis h. 15°
:fciat, ità tn ut prs trræ orintlio
priùs soli obvertar qp occdlior, 2 c
:vai, qæ 15° nbs orintlior e, i
inr cujs mrdianum & nstrum 15° dg
:ciis inrcepti st, unâ h. citius e
:rdies, & mrdia nox qp nbs. illu

vò qi sb eode' mrdiai smerclo dg=
=unt, si sol ſſrà hzntem eoru' as=
=cndat, & illis tm ē sul merdies. —

Hinc m̄ sqi sole', si 6ª h. oriat
6ª m̄ ocdre, si 7ª, 5ª: & vicissi' si
5ª oriatr, 7ª ocdre; si 4ª 8vā. tunc
vò orir sol vl ocdit qndò æ mutr=
=re 1º ſſr hznter apprret, vl infrà ⓢ
hznter deprmr. —

Ite' siqs ortu' [illegible] vrs, globu'
trre crcmiret, unu' die' plus, si
vrs, ocde' unu' die' mns nraret,
qp si in lco unde ꝓfct, ē, emn=
=sset. n' soli orienti occrrendo in=
=rá 360.º, 24h ꝓrovrtret. — hnc pt
ēē sul mrdies 2 cvaibs qbs sol nnq
sul oritr, nq sul ocdit. vrbs v: g:
iis qi sb trri mrdiai smerclo &

sb æqaore degunt; nbs n̄ & iis sol
nnqp sul oritr aut occidit, ni in pp̄io
arietis & libræ. Ites pt sol sul oriri
& m̄ ocdre seorsis 2 coaibs, qbs ō
ē sul medies. sint n̄ 2 coaes ytri
:oales, qarus una 15° orintlo heat
in pp̄io Cancri dies longsmus 15th;
altra vō 16th, mnfstus e ō eō iis
sul mediem, & tn sol utriqp sul
oritr; n̄ s coai orinth e mediesr
ocdli dee una h. ad medies: r co
:ai ocdli 7h ab ortu solis tnsact
st: r sol utriqp sul ort, fuerat.
-crcli vrtcles, 1ari, & mediari do
hzntem in qrantes, qorus qilbt
:bui dur in ptes 8 pr crclos dstnt
inr se 11° 1/4 seu 1/15: st r 32 ltes c
cli, qi vr Rumbi seu puncta py
:dis nautcæ. xcptis his 2 2lqi vrta

dnr dclnantes, qoru dclnao osmar x arcu hznti inr vrtcle sariu & qemlbt aliu inrcepto. sic Azimuth 30° ee dr, si angl ĵtnt x arcu hznti inrcepto 30° ee cgnscatr. —

Problema

Invire crclu mrdiaum

In plno ad libellam ĵstrcto & hznti prllo descrauu plrmi crcli x eodes cnro, in qo erigar styl seu gnomon ad anglos rctos: dein ante mrdies v: g: h. 9ᵃ obsver xmas umbro à smae styli cadntis dnc ad amussis cujsqp crcli crfria atingat: pstea totides h. à mrdie obsver altru pnctu ejsdes crfria qd xmas umbro. attigrit: dnqp. arcu inr hoc 2 pncta inrceptu diamro crcli bifriàs dve: illa diamr crclo mrdiao sbjcebit.

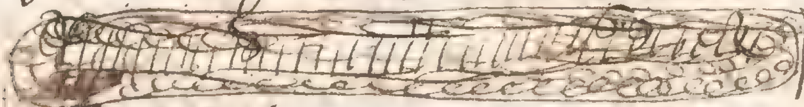
Ecliptica.

ē circlus mgn, in cujs plno tr-
-ra revoluoem sa annua circa so-
-le describit: vl in qo sol qotannis
circa trra movri icpr. Eqaorem
secat ad anglu 23° 29', & in 2 pn
-ctis oppsis, qo eqinctialia dnr, qia
tra ad hanc inrsctioe pervirit,
oibs trro incolis, (exceptis iis qi sb
polis degunt, qoru tot, eqaor ē
in hznte) ē eqinctiu; i ē, dies [illegible]
12^{h}, noxq totide abslver. circl
qi trnsit p hoc pncta dr Colur,
eqinctioru. qi vò c illo facit ang
-lu rctu & trnsit p mxam solis
delnaoe ab eqaore dr Colur,
solstioru. ho inrsctioes 4 pncta
Cardnlia ortus, occus &c efficiunt.

dnr coluri qsi mutili, qia qodam illorū ps ſpra h3ntem obliquū, q= lis ē nstr, nnqp ascēdit.

Planetæ alii plus, alii mīs ab eclpcâ deflctunt in crclis pllis, ità ut mxa dstāa sit crctr 8°; undè si crclū ɔcpias 16° crcà latū in cujs mdio sit eclpca, seu vīa in qâ sol obsvar, in hoc ſpao oes Planetæ crsus sos ɔficient. dr eclpca qia nnqp ɔtngunt eclpses, ni luna sb hoc crclo, vl cətè ppè xat. — Eclpca dvr in 12 ptes, qæ sgna dnr, & nna accpiunt à vic= =nis ɔstllaoibs, qæ nrantr à 1° pn= cto arietis, iē, ab inrsctioe vnâ æqaoris & eclpcæ jxà mu tr o ab ocdevrs, oriente. — Sgna st hoc. —

Aries, Taurus, Gemini, Cancer, Leo, virgo.
Libraq, scorpius, arcitenens,
Caper, amphora, Pisces.



Qolbt harũ ptiũ 30° ɔnct, & solent pngi sb foã aaliũ, undè circlus hic Zodiacus nnatr.

Cũ ɔ̈stllaões ho õ dbent jm ɔ sgnis ɔ̈fndi. ɔ̈stlaões n st stel:larũ qsi systma vl ɔ̈geries in Arieis vl Tauri foã digesta. sg:nũ vò Arieis ē tm arcus cel:tis ɔ̈stns 30° eclpcæ, nrando vz à pncto hoc æqpnctli ad Taurũ & sc de c.. ɔ̈stlaões qdm, undè nna desmpta st, olim illis arcub: eclpcæ correbant, jm vò motu

tardsimo pprctorw oqpinctialiw ab oriente vis, ocdem, uno vz o intra 72. an. istlao aries in sgnu Tauri irepsit, &c, ita ut Pisces jm crre:at sgno arieis. totus hic process, oqpinctionu appplatr, eqe dfelmu loti, asmio phonon

6. sa Sgna aries, Taur, &c vr 7trioalia qpa x parte 7trioali o=:qaoris st posta. alqa 6, austrlia. aries, Taur, Gemni ab oqpinctio vrno vrs, 7trioalem plaga usqs ad qpnctu solstii ostvi: Cancer, Leo, virgo vis, oqpinctiu usqs ad inrsctioem autmnalem. Libra, Scorpi, Sagtari, ab oqpinctio au=tmnali vrs, austru ad solstiu hybrniu: Capricorn, aqari, pisces

usq; ad vernu æqinctiu ptingunt.

Æqinctiu ā vernu fit circà 21 Mar. Autumnale circà 23 Sept. Sol=:stiu æstivu accidit c sol ē in tro:=pico Cancri circà 21 Jun. & dies ē longsm,: solstiu vò Hybrnu qndò versar in Tropco Capricrni cir:=cà 21 Dec. & tnc dies ē brevsmus.

Horizon

2x ē alius raalis seu verus, ē qd circlus mxus mblis colos trramq; in 2 hemsphria dvns, cujs planu trns:=it p cntru trræ, & cujs poli, st Ze:=nith & Nadir cujsq; lci. — ali, ē sib:=lis seu apprens hzn, & ē circl, illeq; undèqaq; visu nstru trat, ēq; prll, proxi. — Hnc infs hznts vu & sib:=les unâ circli trræ diamro dstare:

rivè tn ad immensu orbem tntilla e
illa descripta ut (exceptis lunæ eclipsib)
in plis phonis à sibi preiati.

Hzn sos hct prllos circà vrtcem
captis descriptos, qi di ulent prlli seu
crcli alnis, & apd Arabos Almi=
=cantharas hudi crclorum ab hznte
ad lci vrtcem solent 90 dgi, totidem ab
hznte ad Nadir pr 1glos° crclorum vr=
=ticium.

§. 2us

De Crclis minoribs

2 Tropici.

Sc dicti qd cu sol ad eos acessrit
revrtre usus eclipcam rurs; videar, ds=
=tant ab Aeqre 23° 29'. Qi x p. 7triali
e, Tropc Cancri dr, qi vo x mrdiali
Capricrni. It aeqatori prlli seu varii.

Cicli Polares.

Tm. distant á Polis trro, qm Tro:
:pici ab Æquatore vz 23°29'. Qi polo
Boali adjacet, ciclus arcticus dr
ab Ursis ō procul dsitis, stella n
polris ulma ē in caudâ mnris
Ursæ. —— Ciclus ex pte oppâ
Antarcticus dr. Poli eclypcæ ciclos
hos mu diurno descre ulgr. ⸧

Prob:

Invnire Poli
Elvaom.

Poli Elvao ē nrus graduum
inr polos mundi & hzntem loci, sq
sr eadem qe lci latdo. Elige stella
alqq propè poli qe nnqq ocdit
qe qrantis. obsva ejs altitm m
:xa & mnmam: dimiu Larw dr

addtum mnmo alri, aut sbtrac=
=tum x mxá dalit poli llvaoem.
x.g. sit aldo mxa stella polris, c
ſpprlis ē, ad 3ª stella in caudâ
mjris ursa, 52° 26': sit m aldo
mnma 48° 14', dimiu earu dro
jnebit 2° 6': Id 48° addtis 2° 6'
faunt 50° 20', aut 52° 26', detrac=
=tis 2° 6' relinquent 50° 20'. 2 in
illo cu llvao poli erit 50° 20'.

Prob:

Datis 2 locis dra
Ladnis inunire.

Si sint ex eadem pte æqa-
(2) :oris inventa utrisq latdne, minore ex
majori sbtrahe, pars residua dabit dra;
si ex dvisa pte æqaoris, utriusq
latdnes in unum jferas, ex ima ex illa
additioe resltans, dabit dram qsitam.

Dvsas londes loci vel pris fcle re-
:pries, numerando grad, arcus æqaoris
intercepti inter 2 merdiaos, qbs succve
æqaor applicar? sc dra londis inr
mexico & Pechin in Chino est 140
vel $9^{h}\ \frac{3^{m}}{1}$.

Not: si locus cujs hora qritur ori-
:entlior sit lco cujs h. datr, addenda
e dra londis in prius redacta (nran-
:do vz 1^{h} pro sglis 15°) hra datæ, &
prus resltans indicabit h. qsita,
si vo ad ocdem vergat, eande sbt
lgnta vel p quanter alnis, il

ope Circinorum distantiâ locorum, & ap-
plica mensurae aequatori, & numerum graduum
reperies. Deinde cum milliare geo-
graphicum sit $\frac{1}{10}$ pars gradûs, & unum
gradum faciant 60 mensurae, & productum da-
bit milliaria geographica quibus distant.
Si facis 70 mensuris ad milliaria an-
glicana, reddes 70 milliaria anglica.
unum gradum coeli majoris in terrae specie
constituunt.

Arctus 5us

De Horum terrae que situ
rum Circulorum.

Terra in coelo ratione meridianorum
& parallelorum designat in perioecos,
antoecos, & antipodas.

Perioeci seu circumincolae sunt qui
sub eodem coelo aequatori parallelo deg-

degunt, & sb oppis smicirclis ejs-
dem mridani; v: g: ii qi sb oppo
mridiani Duaceni smcirclo degunt,
& sb eodem parlelo hent eandem poli
elvaoem scil: 50°, 20', & nos illis, illi no
nobis sl periœci: illis & nbs ē sul
hiems; sul æstas, eademq diern
ac nctiu inegas: sol n eodem anni
pred tmo so annuo accedre ad, aut
recedre ab utrsq lci mtæ appret,
sd tn cum nbs ē meridies, illis ē mdia
nox, & vce vsa. —

Antœci, seu ȝäacolæ, sl ii qi
sb eodem mrdiani smcirclo, sd sb opp
prllelis degunt. — Illis & nbs ē su
mrdies & sul mdia nox: dvrsa tn
diern ac nctiu inegaes hent, & dn
anni pestacs, nbs n e hyems, c
antœcis nis ē æstas. —

Antipodes st qi sb ejsdem mediai :pnclis p diamtu oppis & sb op=:pis parlelis ∂gunt. Sc Antipodes nobs st qi propè nra Islandiam in pacifco Oceano navigant, à qorum pdbs si ad nstros lia recta duceretr, ea p cntru trr transiret.

~ Apd hos oa st nbs ↄraria: cm nbs e estas, illis e hyems, cm nbs medies, illis media nox; stellæ qæ nbs occltanr, illis apparent, & vice versâ. Eundem qdem hent hrztem, sd qi ns hems poli arctici elvaoes, eandem illi hent poli Antarctici: Eas ns hems ladnes boreales, eandem illi hent Australes.

4 limites cæli, tropici scil. & polares in specie globi trrstris

circulus sidere in sphaera coelesti dicti
sli, terra dividitur in 5 Zonas, quarum
una torrida inter 2 tropicos sita est;
2ae frigidae inter polares et polos; 2ae
temperatae inter torridam et utramque frigidam.

Qui Zonam torridam colunt, Amphis-
cii dicuntur, quia diversis anni partibus ip-
sorum umbrae meridianae versus utramque
polum projiciuntur. Cum vero sol est illis
verticalis, Ascii sunt seu sine umbra. —
Qui in Zonis temperatis degunt, Hetero-
scii dicuntur, quia eorum umbrae meridianae
per totum annum versus unum tantum polum
tendunt. At qui in Zonis frigidis ha-
bitant, sunt Periscii, quia cum sol ipsis
non occidat, ipsorum umbrae spatio 24 horarum in
orbem vertuntur. —

Archus 2us

De variis sphæ Positionibs.

Sphæ poē 3es: recta, obliqua & parallela seu inversa.

Sphæra recta illa dr cujs hzon æqtorem anglos rectos æqatorem secat, seu in cujs hznte st poli mundi, & in cujs Zenith ē æqator.

Hinc sqr 1º Eos qi sb æqinctiali versant hre sphæram rectam.

2º illa illis ee poli elevaoem, sed utroqs in ladnem.

3º ou sidera omnia cæli ptes spao 24 h illis oriri ac occidere. Rao ē, qia in tli poe ows prlli æqatoris st pprles ad hznte, à qo

diuint in ptes eqles. —

4o. scitu ee 2as sglis annis estates cu sol ariete & libra ingdi obsvari: 2asq hyemes cu cancru & capricornu ingditr. —

Sphra oblqa illa dr, cujs hzn eqatorē secat ad angulos obliqos, tlis e nostra pocō, qbs nq poli st in hznte nq in vtce. —

sqr 1o. sb sphā oblqā 2 eqinctiu bs sglis annis, vz in pprio ariēs & libre: rao ē qā hzn obliqus nlu pallu solis in ptes eqles divi ni qm sol in eqatore describ: alitr palli, qi vergunt st polo elvao, la mjrē portioē hent sprā hzntm & eja qi vergunt sint polo depss. eo māiore hent sprā hzntē portioē

2° Dies æstivos æquales esse noctibus hybernis, noctesque æstivas diebus hyb. Quia quo major est portio paralleli supra horizontem versus polum elevatum, eo major est portio paralleli oppositi infra horizontem versus polum depressum. —

3° Quando distantia poli a parallelo minor est quam poli elevatio, tunc illum parallelum esse totum supra horizontem, et contra, parallelos, quorum distantia a polo depresso minor est quam poli depressio, tunc eos esse totos infra horizontem. Hinc vides illa puncta cœli, quæ sunt in ejusdem parallelis versus polum elevatum, nunquam nobis occidere, at versus polum depressum nobis nunquam oriri; et hinc in parallelis ille qui tantum distat a polo elevato,

quando locus, Duacum v: g: ab æquatore distat, dicitur circulus perpetuæ apparitionis, seu maximus apparentium: parallelus vero oppositus versus polum depressum dicitur circulus perpetuæ occultationis, seu maximus occultorum.

Quænam stellæ sint perpetuæ apparitionis, quænam perpetuæ occultationis facile videbis per parallelos sphæræ armillaris; aut per hanc methodum utere: adde latitudinem loci declinationi stellæ, si summa quadrante minor fuerit, stella orietur & occidet; sin major, tum si declinatio stellæ sit versus polum conspicuum, semper apparebit, si versus polum occultum, semper delitescet.

4° sphæra habitantibus inter æquinoctia

& altu^r ē tropicis 2 qtnis estas
ēē, 2asqꝫ hyemas, ĩ altra lngrem
& frgidorem. >

3° Jeabtntbs sb altrutro crclo
polri i ēe priu; ut pol, eclptco sel
(& qdm unco insti) sglis dibs in
vtce sit: & sglis dibs ēlpta uno
insti in hznte eou^r e: 2 b^r signa
illis in insti oriunt, b^r in insti
oedunt, qra Jehzn & eclpta st crcli
mxi secantes se bifariā: 2 qp1us
ullo ps eclptco spra hznte^r e, in-
gra ejs ndiras, 2'ē, b^r sgna st sprā
hzntē; ide^r dicndm de descu in-
fri hznte.

Jenc patet illos qi sb crclo
arteo habitant, e^r sol ē in ppio

Capricorni hore nctē 24h. & di
instntacu; & vce vrsâ e sol in
Cancro ē: rao ē qrâ tropci ra
Dunt hznte.

6º Habitnlts inr crclu altru
polre & polu mundi, qbs scil.
Elvao poli ẽnct plsqp 66º 31' ab
eqinctio so verno dies qtidie cr
:crt, dnc tnde sit dies ẽnu, sn
ncte: ab eqinctio so autumna
nctes crscre dnc sit nx ẽnu
qò dies nctesqp ẽnuo rò sl Cr
:gres, qò majr e poli Elvaò. p
viventbs inr crclu Artcu & poli
mundi dies ẽnuo ncte ẽnuâ
:gior: habtnbs vò crcà polu ai
:trale nx ẽnua die ẽnuâ lngio
qiâ sol diuti, moratr in Igni

borealbs qp australbs.

7° Degentbs in circulo arctico po= (3)
=larem. polum mundi qdam signa Zod=
=iaci ō poe ocdre, totidem oriri ō poe.
- Eo ā oriri & ocdre psl, ea propr stre
oriunr aut ocdunt: nam circa polum ar=
=cticum signa circa æqnoctium vernum in=
=verso ordne surgunt, Taurus, v: g: anté
arietem, & aries anté Pisces: sed recto
ordne ocdunt, ut Pisces anté arietes,
& aries anté Taurum. Signa vò posita
propé æqnoctium autumnale inverso or=
=dne ocdunt, scil: sagitt: ante scorpium
scorpius anté libram: recto tn ordne
oriuntr; hæc oia in sphæra arfiali
pspicua st.

Sphæra parallela illa dr in quâ æquator
plus facit angulum cum horizonte, ideo cum eo
coincidit, & in quâ poli mundi cum
Zenith & cum nadir coincidunt, ac sqq par=
=alleli æquatoris st non paralleli hzntis.

Ex hac poe sqr 1° habitantbs sb
polo arctco, siqi sint, ee dies ǒnuu
qdiu sol mnet in sgnis borealbs,
relquu vò anni pus ee ncte ǒnua
ĉ. mjr nctis ps ē crepsclu ǒnuu,
qd coitr tnū desnit, qndò sol 18° infr
hznte ē progresso. —

2° Sole ee illis nnqp altre 23° 29
nqp unqp infri, descndre sb hzte
nlas vò stellas fixas illis oriri a
ocdre, sd revluoes sas pfcre in c
clis prllis hznti. —

Arclus 3ius

De declnaoe Ladne
Lndne, alne, amplone
solis & stellaru.

Declnao.

Si pr polos mundi seu eqao
inni crcli mxi ēcpiant ducti

tles crcli dnr zarii aqaoris, seu crcli dclnaou, qiā dclnao ē d staa seu arcus zarii inr prllus qes sol aut stella descrit, & aqaores inrcp- tus: ēqs vl brealis vl australis prt sol aut stella dclnat vrs; polus breales vl australes.

Problema suu

Invire mxas solis dclnaoem

Ope ampli qrantis aut slis insmnti in plno ità psti, ut unus lat, lco mdiao drctè real, & crrus borea rspiciat, smar mxa & mnma solis aldo mdiao in 2 solstiis: harus dra dabit utramqe solis dclnaoes, seu zplus mxa dclnaois: a dimius dra dabit mxas dclnaoes qestas, qs periores asmi ponunt 23° 29', alii coitr 23° 30'.

Prob: 2um

Invenire solis aut stellæ declinaoem pro quolibet Die.

1° in sphã artificiali ducatur locus solis aut stellæ ad meridianum; tum qt numerantur ° ab æquatore ad locum solis aut stellæ, tot graduum ē declinao meridiana

2° Sumatur altdo meridiana solis aut stellæ & altdo meridiana æquatoris, quæ poli altne cognoscere, quod sit ejus complementum si altdo solis aut stellæ sit major altne æquatoris, differentia dabit declinaoem versus polum conspicuum; sin minor, versus occultum.

3° Trigonometricè, datâ maximâ declinaone 23° 29' & distantia à puncto æquinoctio 3.. v: g: declinaoem proveniet invicem solvendo triangulum sphæricum ... æquator, zodiaci æquatoris & Ecliptica constituunt triangulum in quo angulus inter æquatorem & zodiacum

ē rct, & 2arii trnseant p polos æ=
:qaoris: hypnsa seu lat, illi anglō
oppu cgnscr, qià ē arcus eclipcæ
ĵplctns dstaa à pxo æqinctio scil:
30°: cgnscr m̄ angl, acut, inr eclipc=
:æ & æqaore, qià mnsra ejs angli ē
mxa dclnao 23° 29': Qr 2 arcus
2arii qi ĵstuit lat, huic anglo
oppu.

Iā vò, ut prant matci, sn,
anglru proprtioales sl snibs latru
in oi trnglo sphco tā rctanglo qp
obliqanglo: instue ir hanc proportioē
ut radi, 10.0000000 = 90° ad sinu
dstao à pxo æqinctio 9.6989700
= 30° ità sin, dclnaois mxæ 9.6
004090 = 23° 29', ad snu dclnao=
:is prontis 9.2993790 = 11° 29' 26".

hâc ir arte ĵfcre peris tabla

delnaois solris, obsvais iis qo alibi dæms, de tablis snuu & Logmis, qoru ope fclior ē oprao. Tabla sqens sc ōpsta ē ad sglos denos gradus sgnoru.

Grad, in latris sinstri 1o lco
osdunt in qo gradu sgnoru sit
grad, in 3 lcis ad dxtras osdunt
dstaa solis ad eqinctio, qndo ē
illis gradbs. grd, dnqs & 1a osdu

solis delnaoes duo vrsar in illis o.
Vs delnaoes breales, & australes scat.

Prob: 3ᵘᵐ

Dais oblqae eclpco & proi
solis delnaoe invire
loco solis.

obliqas eclpco & mxca solis
delnao st tri synonmi. ideo ē 4ᵘᵐ
qd anteà id jm qr hypnsa: faco
i hanc prortioe, qd fclè cllges x
dctis. ut sn, mxci delnaois
ad snu delnaois prontis
ita radius
ad sinu dstao à pxo eqinctio.

Prob: 4ᵘᵐ

Dais elvaoe poli & horá
ortûs aut occûs solis in=
=vire solis delnaoe.

1º inoni dra inr h. 6ᵃᵐ & h. daas

ortûs & occûs solis resduuerit
dra ascensioalis, cujs ōplntur ē
dra seu dstaa solis à mrdiao qo
coibr dr horaria dstaa; v: g: si
sol oriar h. 4ª dra ascioalis ōne-
:bit 2 h. aqles 30°, cujs ōplntur ō
:nebit 4 h. seu 60°, n sol 15° unâ
h. ꝑcurrit.

hic trnglu sphcu hems x
arcubs aqaoris hzntis & crcli ho
:rii, angl, ōprens, inr hznte &
aqaore mnsrar ꝑ ōplntu llvao
:is poli v: g: 39° 40' si poli llvai
apd nos sit 50° 20'. crcl, horiu
scat aqaore ad anglos rctos, dd
:ogp cgnscu in ille angl, arc, aqa
:is ōprens, inr hunc anglu rctu
anglu ōplnti llvaois poli ē ōpl
:tu horia dstaa v: g: 39°. arc, cu

horii oppo anglo õplnti elvaois poli ē oqlis delnaoi solis, adeòqz eo invento inveniet delnao solis.

Cgnscms unu lt, & utrumqz anglu ei adjentem; qoru un, re:tus ē, altr acut: sd in oi sphco rctanglo eadē ē proportio inr rad. & sin. uni; latris; qd ē inr tang. an:gli adjacntis huic latri & tang. latris oppi. fac r hanc proportionm.

Ut rad.

ad Cosin. horio dstae.

Ità Cotang. elvaois Poli

ad tang. delnaois.

Lado.

Lado 2x dsgi pt, asmca & ge:ogrhcâ. asmca dr qd spectat stel:las & planetas: geogrhca qd spectat urbiu &c. situs.

Latdo geogca ē arcus mrdiani
cujslbt lci inrcept, inr zenith [redacted]
lci & æqatorem; ēqp borealis citrà
æqatorem, australis vò ultrà: unde
infs. latdnem mjrē qp 90° ee ō poe.
— Latdo asmca ē apprens dstaa
stellæ vl plnctæ ab eclpcâ. si n
innri crcli msi ōcpiano ducti
pr polos eclpcæ, eamqp pprlr scan-
-tes, hes crcli erunt zarii eclpcæ,
& crcli latdnu, c stellæ lado tam
borealis qp australis sit arcus z-
-arii inrceptus inr stellam & eclpcam.

Prob:

Invnire lci Latdnē.

anteà notavms eande ee lci
latdnem, qe ē poli elvao: qo n
plus mnsvè qs recedat ab æqator,
eò pls mnsvè accedit ad polu,
& contr eò pls mnsvè pol, elvat.

Elvao vò æqaoris ser oqlis ē ꝯplnto
Elvaois poli: & vcè vrsâ. —Qâ raoe
poli aldo invsgetr anteà dæms: hic
alias methdu accpe.

Obsvetr dstaa mrdiaa solis à
vrtce sew Zenith lci, hoc n ē ꝯpln-
tu ejs alnis; huic dstaa adde
dclnaoem, cs lcs & sol sint x eâdem
pte æqaoris: sbtrhe dclnaoes, qndo (4)
st x ptbs dvrsis: sma ē dra oqlis
ē ladni lci. cs vò sol ē inr Zenith
lci & polu elvau, ut sopè acdit
in zonâ torrdâ, tu dra inr dclna-
qes & dstaas vrtcles erit lci lado.—
— si sol nlas heat dclnaoes, tu ds-
taa mrdiaa à vrtce erit lado: qd
si sol sit in vrtce lci, dclnao erit
Lada.

Londo Loci.

2x ē gggca & asmca, sct & lado.

Londo lci e arcus Eqris intermedia=
:u lci & 1.ⁱ mediau interceptus ab oc=
:de vrs; orinte. hnc infs londe numera
à 1.º mrdiao fixo ee poe 360°, ut
acdit iis qi adjacent latri ocdli 1.º
mrdiai. — Vel e dra inr mdiaos
2 lcoru vrs; ocder vl orntem, qo
dra nratr ft oppem. —

Londo stelle e arc, Eclpceo ab in
:itio arieis ad 2arium illiu Ecplce,
qi ippar trsire ft carn stelle orin:
:te vrs; seu in coa, ut lqnr asmi:
:sc si 2ari, Eclpceo trnsiens ft carn
stelle secat Eclpcar in ppio gemnow [illegible],
lndo stelle erit 60°. —

Prob: 1.ᵘᵐ

Invenire stelle lndem
& lader in globo
arfcli. —

Duc coluru solsticioru ad mrdia

tur pol. Eclipco erit sb 23°: 29' mediai
nrais à polo; ibi fige qrante al=
:ns, & duc ejs limbus gradbs nota=
·us ad stellas, qrans secabit Eclipca
in stelle lide; lado ejs nrabr in
grdbs qrantis Eclipca inr & stella
inrceptis. —

Prob: 2um

Invire dra' Londis. 2
lcoru pr Eclipsin.

antea' dxms eos qi siti st sb
mediao oriente vrs,, cti, medim
ǒputre, qp ii qi positi st sb mediao
vrs, occdem: ità ut pò sglis 15°
rrctr 1 h., adeòqp pò uno grdro 4' h.

Si ir Eclpsis obsvetr in uno lco
ingrâ h. antqp sit visblis in alio,
dra lndis istoru lcoru erit 15°, &
sc de c. —

Terrâ Elpses pst seceri, obsvari,

at mari ō ites, fluctbs ita naves jactantbs, ut nil certi circa lngdem hac via heri pot.

Altdo.

Plantarum, stellarum, aut cujusvi puncti colorum e arc, circli vertcls ōprens, intr hrzntem & locum stellæ az-imuth stellæ ē arc, hrzntis intrcpt intr puncta Boreæ & Austri, & pun-ctum in qo circl, vertclis stellæ secat hzlem; ēq vl orintle vl ocdle.

ōplntum altnis e [illegible] residuum qd hetr post sbtraoem altnis ex 90°. sc si altdo eet 50 ōplntum foret 40.

Prob:

Altnem solis aut stellæ invenire.

Acpe qdrante ci appndet libell cipp adlgunt 2 vis, aut telescop stuatr qdrans ita ut radii solres

-aut per utrumque foramen visuale, aut
donec stella perspiciatur per illa, aut in foco
telescopii, si eo utaris, appareat. arcus,
a libella ad oppositam periphaeriae extremitatem
tot notabit gradus, quot habet stellae altitudo. me-
ridiana altitudo habebitur notando ejus al-
-titudinem maximam, ea enim est meridiana.

Amplitudo, –

Solis aut stellarum est arcus, horizontis
interceptus inter punctum ubi oriuntur aut
occidunt & puncta orientis & occidentis; eaque
vel borealis vel australis, prout stella
in ortu & occasu, est ex parte boreali vel
australi istorum punctorum. –

Prob: –

Invenire apparentem solis
amplitudinem ortivam aut oc=
ciduam in globo artificiali. –

Duc locum solis in periphaeria ad

hztem, vel x p. oriali vel ocdli; °, qͥ
tranr à pnctis oriali aut ocdli
vis; borea' vel austru' erunt amp
:tdo qosita. –

Prob: 2ᵘᵐ

Dais ladne lci & solis
dclnaoe inure solis
amplitudnem.

Sc lado Duacena 50° 20' sit dcln
:ao solis in pрio Cancri 23° 29. si
HO hzn, P polus, Pcr P crcl, hor

AD prll. aeqis in qo sol movetr, & l Eclptca, a 2 aeqv, sit cr lc. solis dur oritr. hzn. aeqr & crcl. horis ∋stuunt trangluin 2 & obliqan:glu in R. —

In hoc tinglo cgnscr angl. 2 qia e rct., cgnscr angl. R qia e ejs mnsra 2 O e ∋plntu elvaois Poli; cgnscr m arc. horis 2 N qi e Dc:lnao Daa: Qr arc. hztis R N qi e ampluo. Id in oi tinglo sphco sn. latru & anglorum st proortiales instue 2 proortioe

Ut Cosin. elvaois poli,

i e sn. angli R. 9.805038 5 = 39° 40'

ad sin. Dclnaois i e lat. 2 N. 9.6004090 = 23° 29'.

sta rad. i e sin. angli 2, 10.00

00000 = 90° ad sin. amplitud. ortvs
i.e. latitud. Lt. W. 19. 6004090 sum.
9. 8050385 sbtrh.
9. 7953705 = 38°

37'.
Hinc tabla huius construes.

Amplitudo ortva & occidua
Duaci cum sol ingredit 12
signa, posita elevatione
Poli 50° 20' & declin-
atione maxima 23°
29'.

Articulus 4us
De ortu & occasu
signorum & sidrum.

Poëtae tres modos duxerunt ortus

occu sidris, Cosmicu, acronicu,
& heliacum. —

Ortus aut occus cosmic, ē qn=do stella oritr aut ocdit qndò oritr sol. — Acronic, ē qndò stella oritr cū sol ocdit. — Heliac, ē cū stella anteà solis radiis immrsa, jm ità emergit, ut visblis evadat. occ, heliac, ē qndò stella ità sole ap=propnqat, ut invsblis fiat. —

Ortus aut occ, cosmic, sgnorū ē arc, eqris inr pprius ariens & hrzom incept, tū cū sol oritr aut ocdit, ēqe 2x rct, & obliqus. —

Not: eqrem ab ortu in occu spao 24h. unfortr & eqbltr ferri sprà qombt hrzom, qià eosdem ser anglos facit cū hrzte. — Zodi=ac, vò seu eclyrca, cū vlvar crcà

polos alios æqris scil. a qbs a-
:libi plus, alibi mns ostat, nec e ut
ejs ptes efiant alio anglos obliqi-
:ores, alio mns obliqos et eodem
hzte: hnc et uno Signo Zodiaci angi
oriunr proce 30° æqris, ad plres
aut paucres pro obliqae sphe. —

Sgnu dr oriri rcte aut ocdre,
et qo arc, æqris mjr arcu Zodi-
:aci sui ascendit aut descendit. —
Dr oriri aut ocdre oblqe, et qo arc,
æqris mnr arcu Zodiaci ascendit
aut descendit. sc Sgnu et qo tm o-
:riunr aut ocdunt 20°, v:g, oblqe
orir aut ocdit. arc, Zodiaci, qo
cqlis arc, æqris orir aut ocdit, or-
:tui so aut occui adeqar, ut lqnr
asmi. —

Et not: hzte & mrdian crclos
revâ mbles ēē; tunc ir oriri stella (5)
ō qndò illa ascndit (c ō morar-
ni apprentr) id qndò plnu hztis,
qd usq ad colos undqaq xdi ōcpr,
illá infrà illa descndit, ut ipsa pro
vsblis ō spciar. tnc vò occit, qndò
hzn ascndndo stella infrà se ipsa
occltat. Sli mdo xplabis qodo sol
vl stella ad mrdian pviat; qo oa
x tra rotaoe, scm Ptolomanos oriri.

ē in proa ascio sgni, plneta
aut stelle c zctá tu oblqa. ascio
zcta ē arc, æqris ōtnt, inr pripium
arieis & pnctu illd qd c stellâ pve-
nit ad mrdian, aut qd sul oriri
c stella in sphâ zctá. — ascio ob-
lqa ē arc, æqris inr pripiu arieis
& pnctu illd, qd c stellâ oriri, in
sphâ oblqâ, & nrar ab ocde ursi orante.

Iter de descioibs rctis & obliqis dcn=
=du ~e. Dra inr ascioes rctas & ob=
=liqs, dr dra ascioalis.

Prob: 1us

Solis aut stellæ ascioem
rectam invire in globo
arfeli.

Duc lcu' solis aut stellæ ad me=
=ridian, & nr, o qi c inr intiu ari=
=tis, & pactus æqris qd pvit ad medi=
=an, dabit ascioem rctam. — Si
vis ad prus rducre, pro sglis 15°
nra 1h. pro sglis o 4 m., pro sglis
minlis 4''. — & vce vsa, si vs rdcu
prus ad o æqris. —

Prob: 2us

Ex dais mxa delnae solis
& dstaa a pxo æqinctio
invire ascioes rctam.

Sit Solis distaa à p.xo æqinctio 30°, maxa dclnao 23° 29'. in figura præ=
:cedenti, circl hori; P Q P secans eclipca in loco solis Q & æqrem ad anglu rectu S constuit cu eclipcâ & æqre trian=
:glu sphæru rectanglu in S, in quo prodà cgnscr angl Q R S cu ejs mnsra sit maxa solis dclnao, cg=
:nscr tn arc R Q, cu sit distaa solis ab æqnctio; Qr arc æqris R S qi ē ascio recta.

Eadem ē proportio inr rad. & tang. hypnsæ; quæ ē inr Cosin. angli obliq adjentis hypnsæ & tang. latris ci adject idem angl obliqq. hnc colges hanc proportioem.— ut: rad. 10.0000000

ad tang. distaa ab æqi=
:nctiō i ē, hypnse A.C. 9.7614394
=30°

ità Cosin. declinaõis maxi

îd ē angli QRS. 9.96245

27 = 60° 31'.

ad tang. ascioïs

recte, i ē R S. 9.72389

21 = 27° 54'. —

Aut si denr tm declnao maxa &

declnao prens, fac hanc anlogiam,

ut tang. maxe declnaõis

ad tang. prentis declnaõis

Ità rad.

ad sin. recte ascioïs. .

Prob: 3ium

Invire solis ascioem ob=

=lqm in spha arsch. —

Duc locu solis ad hztis orientali

lt, nr, e inr intiu arieis & pendi

=aqis qd feribit ad hzte dabit a.

-cioe obliqs. Prob: 4us

X dais ascioe rctâ & drâ asciali invire ascioem aut descioem obliquam.

Si dclnao sit borealis, dra inr ascioem rctam & dram ascialem erit ascio oblqa qsita, & sma ascionis rcta & dro ascialis erit descio oblqa.

Sin dclnao sit ausralis, sma ascionis rcto & dro ascialis erit ascio oblqa qsita; & dra ascionis rcto & dro ascialis erit descio oblqa.

Prob: 5us

Dais Elvaoe Poli & solis dclnaoe invire dram ascioalem.

Dra ascialis ē arc, aeqris inr-

:cept; inr crclu horiu h. 6ᵃ, & crclu horiu c qo sol oriz vl occidit.

hic hems ʒanglu sphcu effu ab arcu hztis H O & ab arcu æqu Æ Q secantis hzte ad anglu acutu h, & ab arcu crcli horio in qo ē so secntis æqre ad anglu rctu 2.

Cgnscms anglu inr crclu horiu & æqrem, qia ē rct, adeóqp 90°: cg:nscms m anglu inr æqre & hztem, qia ē cōplntu ēlvaois poli v: g: apd nos 39° 40': dnqp Cgnscms arcu horii crcli inr hztem & æqre inrcep:ti & oppi anglo acuto, ē n. solis dclnao qo dati v: g: apd nos pro sol:stii estvi 23° 29'. Qr ir valor arc h 2. æqris adjcntis anglo acuto d

Ia vō ut dmstrant matci, pri se hct tang. angli acuti ad rad

aut rad. ad cotang. angli acuti: ita se het tang. latris oppi ad sin. latris adjentis anglo acuto. instue in hanc proptioe. — ut rad.

ad tang. Elvaois poli 50° 20'

Ita tang. dclnaois solis. 23° 29'.

ad sin. dro ascialis.

Qa: dra inviete ee 31° 35' 48". — reduc in 31° 35' 48" ad pus, & hebis 2h. 6' 23" & alqd amplius. subtrhe 2h 6' 23" x h. 6, & resduu h. 3. 53', 37" dabit pus qo orir sol apd nos dum e in Tropco nobis vcinre. rca pus illd qo orir sol, & hebis 7h 47' 14" londe nctis rode pre.

adde 2 h. 6' 23" h. 6, & sma 8h 6' 23" dabit pus qo sol ocdit rode pre apd nos. rca pus qo sol ocdit, &

hebis Inde dici 15h 12' 40". —

P hoc it et precedens prob. inveies dras ascialem et dici nctisqe londes, horamqe qa sol oritr et ocdit qolbt anni pre, in qolbt lco, mdo denr delnao solis pro illo pro et Elvao poli sew lado lci. —

Qnas dierum Duaci
Cum sol ingredr
12 Igna.

Ut vi x his cgnscas horas qa s
orit vult ocdit 1o inonienda

dra : ascialis, ero n̄ ē arc, aeqis inter-
ceptus inr circlu horiu h. 6ae, & circlu
horiu i qo sol orir aut occidit. 2o
dra ascialis inventa reducenda ē in
pus. - 3o pus i addendu ē aut sb-
trahendu ex h. 6., & habr qostu. -

Sectio 2a

De Stellis fixis.

Stellae fixae st cra lucida, ul soles,
qoru immensa ē à nobs dstaa.
qd luce pria fulgeant, hinc ölgr
qia tm dstant tu à sole tu à
nbs, ut imple sit luce adeò vvda
ad nos rflcti. stellae n̄ fixae lnge mgs
à nbs dstant, qm Saturn; attn lngè
vividiori luce fulgent qm Sat: 2o ab

fonte qo sat: luce mutuanr: c
vò nlu alid cus luminosu prer sole
cgnscam, unde luce accipiant, rel-
-qur e ut totide sint soles & luce
pria emittant. —

Art: 3us

De distaā, mu, & mgne
stellaru fixaru.

Imnsu ee inr nos & stellas
fixas spau inrjctu hnc satis patet,
qd o ni pncta lucida nbs apprant,
imò cr eas telescopio qd 100es auget
apprente mgne obi, aspciams, nil
alid prer mnmu pnctu lucis se spe-
-tandu offert. diamri qdm ipsaru
algndo nudis ochs laores apprent
sd hoc x scntillaoe radioru oriri
ut ostat o tm x telescopio, qdm

siqs fit parvum foramen in cartâ sas
obsvet.

Qnta vero a sit dstaa dtrari ō pt. (6)
Hygens telescopii foramen ita xguus
rdhuit, ut fit illd sol ō myr sirio ap-
-pareret. sc vò solis diamr erat ut 1
ad 27664 ejs diamri, qndò oclo nudo
ōsper. si ir sol 27664es amplr dstret,
ejdem c̄ sirio diamri ce appret: ?
si sirius ejsdem c̄ sole mgnis pnar,
qd oio fatndum ē, dstaa sirii à ter-
-râ erit ad dstaam solis à trrâ ut
27664 ad 1, seu 951005328 semdi-
-amtrorum trre: → Hinc coitr dmnstrnt
astmi qd glans plmbea eâdem vlcae
pergens, qâ 1ma ē tormnto xplodr, fere
700000 annos ōsumeret, ut spatium ab
pxâ stellâ fixâ ad nos perrceret.

Stellae fixae 2ccem mu appnte-

pent, alteru diurnu ab ortu in
occu ex revluoe terre; alteru vò tr-
-dsmu ab occu in ortu. obsvavit
n Hypparc an. 120 antè Xu arice
ēe in intsectioe vrnâ Eclipe & Aeqs,
à pncto jmo recessit circt ingra 12.
pte Zodiaci, & smr oa alia Zodi-
-aci signa. unde lgides stellaru mu
trdsmo mutanr, & qfannis apprent
50'' 40''', sew 1° in 72 annis fere. —
mus vò hic (qi in antia di slet
sew à ordne signoru & dvsas
londis jxa recentre Asmia ō or-
-ir ex mu stellaru, id, ō pol, pnta
solstiá & aeqinctialia mu hrant
retrogradu ab oriente vsus occdem,
qâ proptioe intsectioes illae vsus occd
inclnanr vel procepunt, eadē stella
vrsus oriente mu huisse videbnr

mu vò hunc trro attribendu ee
x ſurâ sphoroidcâ ejdes ſpdere jxà
leges mtuu & grvais dmstrat eVero.
— ölaoe tn ſctâ inr obsvaoes recn=
:tru & antqoru slades stllaru re=
ſrriunr invariao. —

Qd ad stellaru moles attnet,
crtu ō e an sint oes oqles, an âlie
mjres âlie mnres. Clari, öj cturaltr
assgnat raru proportioe ad trra
mole, ubi stellis tribit dvrsas ad=
mdu mgnes. at probli, xmat
ksil ō cē lnta drano inr moles re=
mru, Id ras cē soli mole oqles. —

Ds. alie apparent cotris mgs
öspcuo, alie mns: r ō st ejsdem
mgnis.

R. hoc proirc poe x dvrs aeotae,

aliæ n̄ nbs veñres, aliæ remotres
st: qæ veñres splendore & appren-
te diamro x scntllaoe orta relqas
sperant.

Art: 2us

De Stellarū ordne & Nro.

Stellæ divi pst 1º in 2 classes,
nempè in eas qæ st oclo ndo ȯspcuæ,
& eas qæ snè telescopio pspci ō p-
st: 1ª illa classis in alias 6 sbdivi
i e, in stellas 1æ, 2æ, 3æ, 4æ, 5æ & 6æ
mgnis. illæ st 1æ mgnis, qæ st nbs
pxæ, & splendiores, & sc de c. ordnbs:
ubi advertendū ē ō ēe oes æqè ȯspcuas
qæ in eādē classe nrant, v: g: Siri,
& Artur, lucidiores st aldebaram
seu oclo Tauri & spicâ virginis,
ejsdē tn st classis; imò alqæ st

stellæ de qbs ō ǯstat ci sint clssi
ascribendæ: sic Ptolomæus prvum
cne 1æ mgnis, Tycho 2æ pnit: undè
stllæ tudi dberent in ordne sprão
dsgni. —

Post 6æ mgne veniunt oes stel-
læ, qæ ō ni telescopio pspcnr, & alqn-
do dnr 7æ mgnis; proà qò fcli, stlæ
in ordnem reducanr antiqtùs eas
in astrsmos seu ǯstlaões dvser-
unt asmi. — Astrsmus ā ē cllectio
seu sysma mltarum stllarum inr se
ō mltum dssitarum, qæ ut ǯmodiùs
dsgnanr, sb foā alicu aut rei altri,
notæ solent depngi. Extrà tros astrs-
morum sitæ st alqæ stellæ, qæ proinè
infoes dicslent; at ex his nvás alqás
ǯstlaoes ǯpsuere asmi, ut cor caro-
li, scutum Sobieski. —

astronomorum nr. & stellarum veri, c̄ apud auctores. Hypparchus Rhodius ꝯ proriis & aliorum observacionibus catalogum 1022 ꝯtinentem fecit, quibus 4 alias ad=dit Ptol. sec. 16 Tycho Brahe nobilis Dan. loca ꝯtravit 777 stellarum propriis laboribus ꝯ quibus suis ꝯ catalogis aliorum catalogum novum edidit Keplerus stellarum 1163. huic catalogo Ricciol=lus Jes. 305 alias adjecit; at prope=annotavit in eo aliquas stellas quæ prope Tychonis erant visibles, sed ꝯ vivebat Ricciolus, evanuerant. Halleius, noster in insula St. Helenæ 1mus accuratè obser=vavit stellas polo antarctico vicinas ubi 373 annotavit, earumque loca ad an. 1677 ꝯtravit. Postea Hevelius, Dan=ticensis accuratis instrumentis obser=vavit 1553 quibus adjunxit, 335 ꝯ ...

Halleri.

At verò locupletissimum 3000 stel-
-larum Catalogum adornavit Flamm-
-steedius, in quo quidem 2677 locadtravit
ad an. 1690: in eo tn calclo meta
st nudis oclis ō ōspcuoe, c. plbes stas
qstdie detegit telescopium ità ut dub-
-tari ō pssit qn oes osmaoes xcedat earum
nrm. innre st in viâ lacteâ, à qb
partes illum splendorem proc. feli
pltbs trahit. Hooke ad Pleiadas
(vlgò 7 stars) qus ō tm ōspiciam
telescopium dirigens intrà angstos
illos limites 78 detexit, & Ant: Ma-
-ria de Reita asrit se in uno O-
-rionis astrismo 2000 nrasse.

Ecmat Keil vix unqp ultrà 100
ee nil oclo ōspcuas, i qd ē oio in-

-cidble, nr qos vhemens scntlao efciat ut plres ēe xtriems qp revā ibi st, cidre tn ō psmo ō paucres qp 1000 alqndo sul ōspci.

ōstlaoes seu astrsmi 80 in globo Jo: Senex depnguntr; scil: 12 signa Zodiaci, 37 ptriales; 31 ausrales, inr qos st 40 jxà obsu-oes Flamstedi, 15 x Halleio; 16 ab Hevelio, & ālii x infoibs edcti, qi oes sul ōnent stllās 2852 qbs adjngit 8 nvas ōstlaoes, aliasq stlas infoes.

17 ōstlaoes Boreales
Propè Polu.

Draco ōnet stellas - - 49
Ursa minor - - - - - - 12
Cepheus - - - - - - - 40

Cassiopeia	52
Lacerta seu Stellio	12
Cygnus	73
Lyra	27
Ramus & Cerberus	9
Hercules	92
Corona Borealis	11
Bootes	53
Chara	11
Asterion	13
Cor Caroli	3
Coma Berenices	24
Ursa major	105
Leo minor.	20

20 Constellationes Boreales propè Eclipticam.

Lynx	55
Camelo-pardalus.	23
Auriga	46
Perseus	27
Musca	6
Triangulum minus	5

Triangulum majus — — — 10
andromeda — — — — — 66
Pegasus — — — — — 81
Equlus — — — — — 12
Delphinus — — — — 18
Vulpecula — — — — 29
anser — — — — — — 10
Sagitta — — — — 13
aquila — — — — — — 29
antinous — — — — — 34
Scutum Sobieski — — — 8
Serpentarius — — — 67
Serpens — — — — — 50
mons monalus — — — 11.

12 Signa Zodiaci.

aries — — — — — — — 49
Taurus — — — — — — 109
Gemini — — — — — — 94
Cancer — — — — — — 75
Leo — — — — — — — 91
virgo — — — — — — 93

Libra	33
Scorpius	44
Sagittarius	48
Capricornus	58
Aquarius	93
Pisces.	110

ÿ stlaoes australes.

Orion	93
Lepus	25
Eridanus	72
Cete	80
Pisces australes	15
Corona australis	12
Ara	9
Lupus	36
Centaurus	36
Corvus	8
Crater	11
Sextans Uraniæ	4
Hydra	53
Canis minor	14

Monoceros — — — — — — 32
Argo-navis — — — — — 48
Canis major — — — — —29
Columba Noaci — — — —10
Phonix — — — — — — — 13
Grus — — — — — — — —14
Indus — — — — — — — —12
Pavo — — — — — — — 14
Apus — — — — — — — 11
Triangulum — — — — — 5
Musca — — — — — — 4
Robur Caroli — — — — —13
Toucan — — — — — — 9
Camelion — — — — — — 10
Hydrus — — — — — —9
Piscis volans — — — —7
Xyphias. — — — — — 7

Si his ȷ̈stlaoibs addatr Cruc
ȷ̈nens 4 stlas qo slent annrari

Sagittario, erunt ōstlaōes 81 &
qo melī, ordnentr stellæ infoes,
pst addi ꝗ infoīb hæ ōstlaoes:
— 1° area croē prope Se=
:pentis caput inr oriona & letū
ōnens 5 stlas: — 2° oclus
uraniæ stla lucida inr Booten
& monte monalū: — 3° Scep=
:trū Pegasū inr & Delphinum
ōnens 4 stlas: — 4° Paradisus
ōnens 11 stlas infrā Taurū inr
oriona & cetum: — 5° Turris
Babilonica ōnens 12 stellas
inr Corvū & virgine: —
6° orbis regius ōnens 10 stell.

inr Tibiam & Centaurum: —
7° Psittacus ɔ̈nens 2 stellas
lucidas inr Cratera & Sextan=
:tem Uraniæ: 8vo Sciurus ɔ̈nens
6 stellas. — st m pauce alie

qe nlo nne cgnscnr.

Art: 3ius

De Nubeculis
Stlisq3 novis

versus polo Antarctico 2 st m
:clo ejde pene colris & via lctea,
splendore illu recipiunt à frqntb
stlis ibi sitis, qe ab oclo nudo

detegi nequeunt. Praeter has nebulas
detegit telescopium maculas quasdam
albas, quarum lumen aut stellis ibidem
positis attribuendum est, quae a telescopio
ne quidem detegi possunt, aut ipsae stellae
melius atque nebulis ferme obrutae. —
stellae m alqe ab antiquis sunt observatae,
quae jam non apparent; an penitus inte-
rierint incertum est; nobis in toto ap-
parent antiquis penitus incognitae; i-
mo non desunt quae post aliquod progressum,
postea suum splendorem recuperant. —
has inter eminet stella in collo ceti,
quae per 8 vel 9 menses evanescit, per 3
aut 4 reliquos splendorem perpetuo mu-
tat; improbabile non est maculas superficiei
ejus partem melius obscurare: ipso

tn melo mtaois xpertes ō st: qndo-
-qz n̄ diuti, nbs apparent qndoqz
citi, evanescent.

Praeà x asmoru obsvaoibs ac-
-cepims obsvaas ēē stlas inr lucidis-
-mas nrandas, qe tn gradatim mi-
-nute pntis tande evanuerunt. hadi
stla Hypparco caa erat cr calclu
su ōscrbret, ut pstris notu eēt
an stlae alqe perirent: ide Ty-
-choi acdit meta pst secla; cū vsa
ē stla in ōstlaoe Cassiopeiae circa
mediu obrem an. 1572. hoc Siriu
Lyramve splendore sprauit: nqz
vsaoē Veneri qicqz ōcedro diu nbs
lucidisma apparet: at pstqz p 16
menses vsblis remnsisset, paula

evanuit: refert Leovicius ex hist.
illorum priorum apparuisse stellam hunc in
prope Cassiopeiam an. 945 & an. 1264,
quae forte erat eadem quam Tycho detexit,
quamquam volunt aliqui post peractam sae-
reductiones denuo rediisse.

an. 1600 Ricciolus nova stella
conspexit in pectore Cygni, quae usque
ad an. 1660 visibilis erat; & Hevelio
apparuit tanquam 3ae magnitudinis: postea
usque ad an. 1666 invisibilis erat,
quae postea ab Hevelio iterum visa est
quasi 6ae magnitudinis in eodem loco quo an-
tea, ibique jam manet. olim non Pleia-
des 7 numerantur, hinc in fastis Ovid.
Quae 7 dici, 6 tamen esse solent.

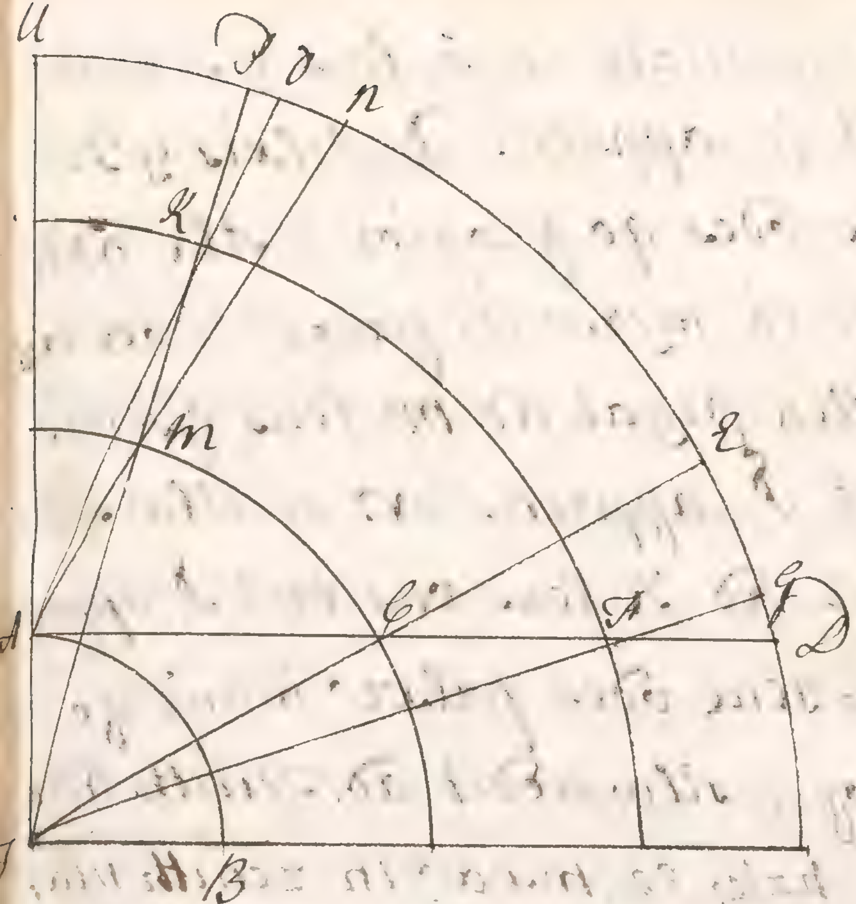
omitto alià innra ejs vais tomià.

Proble. ē has aliasqp ej di. stlas splendore^ su^ amsisse x melis, qbs aut pnts ōtgunr, aut mgna stē x pte. Problac tn fitè ō crel intia lorus, qi asrunt alqas stem ex his stlis pnts intrisse.

Art: 4us

De Parallaxi Stlarum

Prlxis stlæ vl plntæ ē dra inr lcu^ in qo stla aut plnta ōsper x trro sprcie, & lcu^ x qo x cntrō trre ōsperer



Sit AB quadrans superficiei terrae, T centrum. Sit AD Horiz. sensibilis, U Zenith, sint C, U, K loca stellarum. Si stella supra horizontem surgunt in C, locus ejus verus visibilis a centro erit E; locus apparens visibilis a superficie erit in D: arcus ED est parallaxis.

Id si oriatr in F, locus ejs vrus erit G, apprens D, Prlxis GD. — hinc vdes qo propior e stla ad tr-ram, eo mjrc ce prlxc, & vce vrsa si stla prgat ad m locus ejs vrus erit P, apprens N: si stla F pro-gat ad K locus vrus erit S, apprn O, — Hnc vdes prlxi mnui qo propi stla accedit ad Zenith adeo q in hzte ee mxa, in zenith nla; nam si eet in Q, vdret tu a cntro T, tu a sprcie A in W. unde e prlxis sepe dscr dra dstae loci vri & apprentis a vrtce.

angulus qi est pt intrsectioe linearu ad locu vru & apprientem ductaru, e angl, prlxeos, v.g.

A m T, & ipse sæpè dr parlaxis: sb hoc anglo apparet terræ semidiameter si e stllâ conspiceretr. →

Jàm vò ut cognoscatr quâ proportioe minuatr parlaxis prout propiùs accedit ad zenith, sciendum ē eē ser eandē proportioe inter semidiametrum terræ, & distaam stllæ à terræ cntro, quæ ē inter sin. parlaxeos & sin. distaæ stllæ à vertice, sic in tringlo A T m sin. angli A m T qui ē parlaxis, ē ad sin. angli m T A aut T b A m, qui denotant distaam à vertice, ut A T semidiamr terræ ē ad T m distaam à cntro. → ac proinde sin. parlaxeos in C ē ad sin. parlaxeos in m ut sin. angli u A C ad sin. angli u A m. undē

si prlxis cgnscar. in. unā dstaā à zenith invri m. pt in qalbt altrâ dstaâ. x g

x.g: si prlxis sit 1° in hzte, qndo dstaa à vrtce ē 90°: Qnta erit prlxis, qndo dstaa ē tm 10°

ut sin. dstae. 10.000000

ad sin. dstae. — 9.239670

ità sin. Drlxis. — 8.241855

ad sin Drlxeos. 7.481525
10' 2

(8) Prro cs, ut dxms, sin. prlxeos ad sin. dstae a vrtce, ut smdiamr trr ad dstaa à trro cntro; hnc si stla aut qdvs alid phenom dstet à trrâ plsqs 15000 smdiamris trro, prlxis erit insiblis, n° jntndo proom

ut dstaa à cnro trrœ; 15000 N.V.

ad semdiametru trræ 1

ita sin. Dstaæ à vrtce, i ē,

Angli U A F 1000000=90°

ad sin. Prlxeos 666.

qr ultmus sin. ō invnr in tblis ēs

sit infrà 1, id fit rula proportiois in=

vnr ōnere crctr 14". n=

ut 2909 sin. uni, 1

ē ad 60". ita 2243 drco invto

2909 & sin. prlxeos inventu, ad 46"!

2 prlxis tm ōnet 14": id tlis angl,

ē insblis. — Q E D.

Hnc si daretr dstaa stlæ à

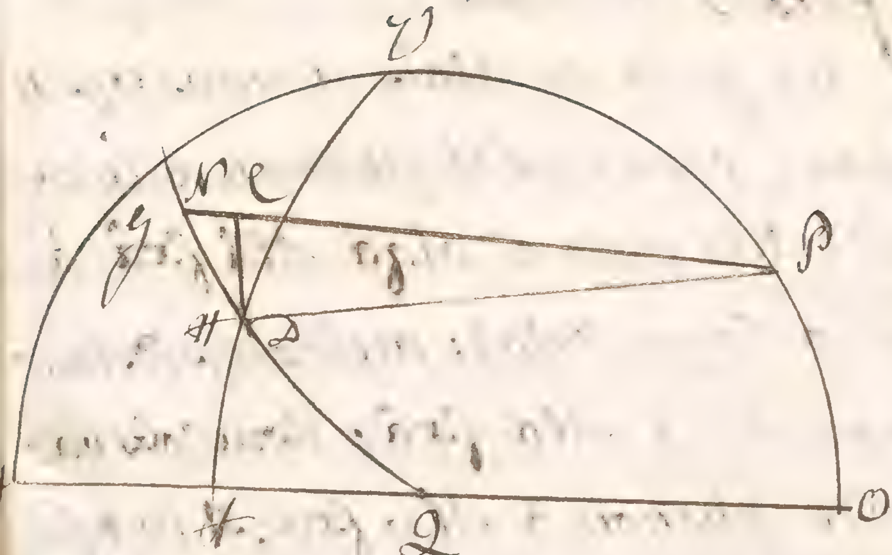
trrâ, invnri pot ejs prlxis fr Prob.

2um & 3ii De trigon planâ: n in

tnglo ō l A rctanglo in A, dana

hypothenusa T C distantia, & crus T A similitudinem terrae. sine si daretur parallaxis inveniri potest distantia a terrae centro per prob. 4um ibid: nam in eo triangulo dantur omes anguli cum uno crure.

Praeter parallaxim altitudinis, de qua hactenus egimus, sunt tum 4 aliae parallaxes, scil. longitudinis, latitudinis, rectae ascensionis & declinationis. Sit H O horizon, & ejus polus E Q ecliptica, V A circulus verticalis transiens per locum verum stellae in C & apparentem in D. a P polo Eclipticae ducantur 2 circuli latitudinis transeuntes per locum verum & apparentem stellae, & secantes Eclipticam in H & G, C D erit parallaxis altitudinis, G H parallaxis longitudinis, C.v.m latitudinis.



In eadem figura sit E Q aequator, P polus. H V O meridianus, V C A verticalis transiens per locum verum apparentem solis; P C G & P D H quartae aequis sive circuli declinationum. Praeterea G ostendit veram rectam ascensionem stellae, H apparentem: distantia G H est parallaxis ascensionis rectae, V A, declinatio stellae est G C, apparens est H D, differentia earum N C

ē prlxis Declnaōis.

Ut prlxim alnis inomias cujslt
phoni, obsva qndò phenon ē in vo-
De vrtcli crclo c̃ alqâ stlâ fxâ à
qâ ō lngè dstat: metiro ejs dstaa
apprente à stlâ fxâ; ulteriu obsva
qndò phenon & stla fxa st in eqli
altne sprâ hzte tu qp m metire vo-
nu dstaa; Dra haru dstaaru vix
qndqp discrepabit à prlxi; n si
prlxis ect ingr. grd, tn ex hac mt-
-tdo ō sqretr error ulra 5'.

At qvs huic rei asmi strnue
incubuerint, variasqp prortoes ad
ejs slnoē tradidrint, c̃ sme sit utli
ad crtas colstiu dstaas & mgnes
-trandas, nla tn in stlis fxis prl

ne qdm annuas certò invenerunt riu
smdiamtri trra, qd ō ē ꝯspravè ni
pnctur ad tntar dstaar? imò ndum
solis prlxinn accraè dtrarunt ob
nimiam dstiam; mnm, n̄ error in
obsvaoē spraecet grāvaē errorē in
prlxi: conai qdm st martis pr=
lxi invnre, dum nbs ē sole viciniori;
at ea ps̄t. acraismas obsvaoēs inven=
ta ē vix 30"; undè p prortioēs ds=
taarum, qas ex theoriâ mlius plactar=
um deducnt solis prlxi vix 11" at=
truunt, undè ōlgunt ejs dstaam à
nbs eē crctr 19000 smdiamrōs trra.
Qâ raoe ꝓint hoc acrai dtrari
p obsvaoē Venris spra sole transe=
untis dmstravit Halleius in act: Phil:

id hoc ō ante an. 1761 evinct. -

Supo prlxis solis inveni si ex tablis astrncis acraè inveniās lu luna pò ipso obsvaois momnto, tmqp x tablis refraioū inveniās altre luna sppra hzte rales, eode pric instrnto metire altre veri luno sppra hzte sibles; dea harū alnū erit prlxis pò insti ipso obsvaois, qà inventâ in hzlis prlxis perit in-vigri. Ixà obsvaoes acraiusmas hzlis hoc prlxis ē 57', aut in 1° v ōter dstaā mdià lunæ à træ ē crcbr 60 smdiamærū træ.

Qs Qid sit dendū de influxu siderum?

R. Scrip. S. SS. PP. ipsamq rai

testari plus ee eorū influxū in aus
hor libros. at n̄ sglis horis nas=
-cnr hoes, eodē pris mmnto, qorū
vita, fortna, indolesq plnē dose stz:
undē astroloa seu ars dvandi ex
sidrū influxu; sb qbs qs nascr,
ō tm impia ē, sd oio vana.

Sectio 3ia

De Colorū naâ &
Systmatbs.

Art: sus

De Colorū naâ.

arles celos ee soldos & incorru=
=ptbles pronavit: hanc ejs sntia
mnne: ōli tuenr 2epantbs ō tm oi=
=bs: hujs otais asmis, sd & SS. PP. ple=
=risqs: ——

& sane ipsa rao istis Phis sat aprte adversatr. – nr 1o. Mars, qi sole, ut norunt oes, sprior ee solet in oppoe infrà solis orbtã [illegible] Phorum obsvaoibs deschdre [illegible]probatr: ai hoc impleo cet si colu plnetiferu solidu foret; õ ñ pot uni plneto spha altri orbta seu spha solda pntrare.

2a obsvant asmi Ven. & merc. gyrare crcà sole nnc sblmres, nnc deprssres, nnc õlatrales: obsvant m qosda plntas mares ulg. satellites dctos crcà Jove & sat: crcmvlvi, Jove vò & pleros[que] al. plnetas crcà priu axe õvlti: a hoc ilgi õ pst in systmae soldai

colorum, jxa qd oes plnete in sphis
orò soldis fixi st & cs iis in orbem
agnn:

3º. iidē obsvant pl Cometas lngè
altiùs ascndre sobre qp in intio ap-
parent, atqp ab uno orbe colsti ad al-
trum migrare, qd fieri ō pot si oes
sphe colstes soldo frent.

Dein Celos ō ee incorrpbles sc
Pr. x. mclis solarbs qe sole in tel-
scpiis obsvae fuerunt an. 1611 adeò
freqntes ut Schiner, sul. alqndo 50
ōsperrit; tum rariores vso, atqp ab
an. 1650 usqp ad an. 1670 vix una
aut altra ē obsvaa: x eo pre sa-
pi, vsa st. ~ has ā mclas spema
aeris rgioe sprores ee x eo ōstat,

qd asmi dsjunctsmi in eade disci
solaris ptes eas ösperint, quoq
tmo oqbli à limbo solis orientali usq
ad ocdlem 13 frè diebs progredi
soleant. → ō ee ptes Coeli dnsores
(ut vult Goudine) i dmstrat, qd
eodē mele 26 aut 27 dieru spacio
vetgne sas circa sole, vl pti, o
illo, ö fciant; dein qd alias x aliis
furis obeant, mdò in unu coeant,
mdò decedant, mdò ögloberu, mdò
dssipentr. —

Eade Vas tm x faculis solaribs
seu ptbs lucidioibs, qe intdu
apparent in dsco solis lfrari pot;
iter x iis qe de melis stellru dxim.

Ds. 1º Job: 37 dr:" Tu forsan

o eo fabricaus es colos qi soldsmi qsi ore fusi st? r coli st soldi.

R. Dis. Cons. r coli st oqolntr, C. ecva N. imendatr ibi poa & sapia qâ fctw e, ut res oo naâ sâ fluxa & labilis qsi e othea sbaa, o mns öslans & ppua sit, qs si soldsma & ore fusa eet. Dein vrba illa proferuntr ab impio Eliu, c9 vrba Scriptre sacre auctrad o here testis e S. Greg. mag.

Ins. 1° pi coli sint soldi nla rao eddi pl, cr mdo altres st Plnete, mdo depressres: c9 tn raod dat Ptolmeo, si coli sint soldi.

R. N. ans. Dein si recrrendw

ect ad diuna vlnae ide faiunt Ma-
:lmoici, & nla alia raoe eddant
cr coli soldi gibbsi ptbi, qs ex oi
pte eqles à Deo crearentr. ertc
Cometo motus prios hent qbs tm
orbes soldos Gourd ipe o ocedit.

Ins. 2° moyses vcat colu si-
derum firmamentum: r illd stu e Mo
2. cr. coa. nla n rao cogit ut
firmnti nnc cus soldu illams:
r illd di pt frmntu, in qo tnqm in
soldo stle fixe sustinantr, & vox
hebraica o tam firmntu qo expnsi
scat, teste Derecio doctmo interprete
n alibi moijses affrat aves in
firmnto ubi nil alid illit qe spu
illd vcurd undeqaqz expnsio. cr
Cometo spra frmntu ascendunt,

ideoqz oi x pte facli pntrant, et e
ospu no sbducenr, ni n coridor-
bile sprà firmntu ascendrent; o
ita' earó in ospu nstru onirent.

Ds. 2° Si coli eent liqidi seu
fluidi mxiu soniu, qo Plncte au-
ra etherea findrent audrems: r&c.

R. cr. ans. p jxa' arlis snta
son, in aere tm crsri progri
pt. mdiu a p qd tnnscunt Plan-
ete c pone nli, dnsais, adeoqz
nla xrcet sible restia. dein siqe
pte soniu Plncte edrent, a nbtr ob
immnsa dstaa audiri o pt. ->

Ds. 3° nnqz obsvaru e stla aut ns-
ci aut perire: e coli st xprtes gravis.

R. adm. ante. cr. coa. Qs. n in
irà fi gravoes rid & cruoes icrcó

ngct qd tro nnqs de nvo grao; nnq crupte fuerint. Dxi Adm. ante Dubiu n fite ciqs vidi ptan o alqo rariu stlariu pscanti & intre zant, qas aut aduntasse, aut abisse telescpiu pone qtdie osdit.

Ins. 1° o dantr in colis qlaes ǯario: i in colis nla e grao.

R. cf. ans. i ipsiu n e qd hc in qoo vnit, an vz ulla sit in colis ǯarias, ngnte arte, sd pauli obsvnte, ro ipsa alis affrantbs & solis maclas in orgiu affrentb cute qsqf ex SS. PP. Platoe secuti s (ut 1a fre oa ccco lumna) artis tsia graois & cruois xpli & a mac tenaci prois, dvsa u voce explosere.

ns 2o Si qid in celis prucretr
i mxe in trâ, solis ac stllarũ
influi sbâ apprerect: sd in trâ
nil geatr nl crrmptr: o

R. cr. maj. arga ñ qbs prbo:
:ms in celis graoes rio fi, in trâ
ipsâ fi solre ō prbantr. →

Art: 2dus
Systema Ptolemai

obsvaocs provis

Pmò ft systma Plnetarũ illr
cllctiō 17 crũ in qbs xmnandis
tota fiè visatr asmia; rlqa ñ
cra colstia nmiũ à nbs dstant
qp ut de iis qpdqp crtō cgnscams.
x his 17 crũs, 16 st prié Plnetæ
seu cra errnka, unũ ū in cnro
qèscit, nc lco dimoetr.

hoc ab oibs ȝessū ē, dū alii solē,
alii trā in cntro systmatis qpiscere
ȝtendunt. hnc cr̄cn' jxā qos mu=
tua attrao & grvao hoīū 17 crū
ō ppt ē illa oa pppuō agitare, hi,
inqs, lcl sole cntro pxū, ȝtendant tr̄
pō cntro systmatis, ō solis cntrū
assgnant, sd pctū qoddā qpèsen
ā qo cntrū solis qs tntmè oudeul

Hoc 17 cra il tra, lna, mrcu,
Venus, mars, Jupiter ō 4 satlibs,
Saturn, ō 5 satlits, & sol ā q
velqā oa lucē sā mutūantr.

2º Distaa inr cntrū orbls
pnete & cntrū crīs crcā qd plncti
revolvtr, dr Eccntras plncte.

3º Distaa Plncte a cre crc

qd gyrel zx dsgz, mxa, mnma-
& mdia, qo aqz à mxà & mnmá
dstat: pctu orbita ubi dstaa m-
:xa e, dr aphelium seu apogeum.
pctu dstao mnmo dr perihelia,
seu perigeum. — 1m illd pctu dr
Augis & apsis spror, alid dr
apsis infror. Sea rcta j grgr
hoc pcta, i e, axis lngior or-
:bito dr lca apsidu. —
Qd ad systma Ptolemei at-
:tinet opere pretiu ò erit fsè illd
explare, ò nlos fm heal defnsres.
hc immeto, n protrqp qd Plnetis
orbes soldos sglos sglis ocssit,
marte cllcat sprà sole in so celo

soldo, ita ut nuqq solis orbita in=
:ferior sit; venere vò & mercuri infra
sole, ita ut illo nuqq superiores evad=
:ant. ai mars &c, nuqq supra sole
ò nuqq infra observantr: 2. —>
& 1º qdm qd mars alqao supra
sole versetr admittitr ab orbs; qd
vò nuqq sit infra sole dmstratr
ab ejs apprente diametro (ut nil
hic de pralxi dcam) qo alqao
maj e vz in oppoe, alqao mi
nemp. in ◌̈joc. 2º De mercurio
& venere dmstratr qd alqao supra
sole sint; qia ois planeta pleno o
:be lucens & dstans a sole mi
qa semicrclo dbet nriò ee supra
sole, vz ut hemisphorium a sol

illuminat nbs obvertat; sed omnq Ven, & mercri, plenâ facie lucent, ut ex telescopio constat, & tn ser distent à sole mns qm sm coelo: Elngao n maxa Ven. ē 48° merc. vò ād sm̄ 28°.

Art: 3ius

Systema Tychnicū.

Tycho-Brahe noblis asm, Uran:oberge in Daniâ sb an. 1580 systma excoavit qd. sc se hct. — Cælū Plnctarū fluidū spoit; trā in cntro mundi i=mblē stuit crcā qm sol & lna cū stlls fxs tnqm crcā cntrū spao 24h cursus sos ō apparentes sd veros perfiunt. crcā slē vò tnqm cntrū si mns 5 alii plnetæ jirtunte: illa crcli seu orbitæ in qbs mercri, & Ven: mtus periōs ab occu in ortū crcā solē perfiunt, trā xcludant; orbitæ vò qbs mars, Jup & Sat. mus periōs ab occu in ortū

circa solē frangunt, terra in ipso ō-
:plelantr :(vid. tab. sys. tyc.)

Cū a sol in centro fere horum Plane-
:tarum [illegible] sit, hinc ē ut ille terra qtanni-
:ob Eclipticā circmeat, 5 hos planetas cir-
:sus sos inter ō ferientes secu tehet.
& hinc rao redditr cur 3 superiores plane-
:tæ, Sat: Jup. & mars in ō ioē apogæi
sint, in oppoe vo perigæi quia vz
in oppoe inter ipsos & centrū suū interja-
c tellus, ō ite in ō ioe, ut pr se patet. hinc
fr reddr rao staois, directiois & retgrdaois
Plantarū. Rejicitr systma Tychois

1º fr nc rae ōmndatr, nc bnè phæ-
explat: nā prote plntarū staoes, qbs expli-
alii alias raoes invenrunt, qōo fr ptr
orbita solis, mar. bis intersecatr vz ph-
ild qo mars qndoqr terræ ē propinqior,
qavs raoe trahendū erat ad

plota credo 2 circa stant, terra nempe.
ipsa circo solis & lunæ: dum alii 5
planetæ circa solem tamquam centrum suas
revolutiones suas perficiant.

Probatur. fieri non potest, salvis physicæ
legibus, ut 2 motus contrarii uni eidemque
corpori fiat seu eodem tempore competant: hoc
vero contingere deberet in Tychonis systemate,
quia sol motu annuo ab occasu in
ortum tendit, diurno vero fertur ab
ortu in occasum. — tamquam dici potest quod
vi solidi sphæræ, dum contra motu proprio
reluctatur: cœlos non esse solidos nempe
admittendum esse jam nobile Ptolemai-
-cum omnes agnoscunt. o motu diurno
colorum & fluidi cui innatat,

abripit, dum mu annuo ab occide
in oriente tendit: ttis. n mdii esta
brevi destrueret mu plnetarum, &
rursmu cum mdiu illo & soli dfren
:do ineptum alibi prbabms. riqpdem
fitr sol in eclipca per unum revã.
mu spiralem, qo ad idem pnctum
mdai, pactá revolnoe diurná,
o revrtr, adeóqp pr retrdaoem mu
diurni ortam x algá dtraoe oblqá
oppsá vrsus oriente proripre vdr.
w qona e ca phyca illius re-
trdaois? unde mus ille oblqus,
qo io ab aqre ad trpcum recedit,
pstrá vó ad eundem reflctr, & o
cius mtum lea rctam affctat? r

vi dicendu Deu sbilivisse leges
sibinones in naā ɀpantes, q̄d nefas ē:
vl ad Anglos & speali alq̄od Dei
auxliu c Jesuitis ɀcurrendu ē,
unde hic effus suclas, & pror
ru ordnes fret.

Sysma Coprnci.

Prsqi hanc hypsis xplcms,
dsgnda st mus ɀales & apprens,
p̄ mtu ɀale ilgo ɀale trnslaoes
cris x uno lco in aliu: sc v: g:
sqs in littre stans vdeat navim
qe antea dstabat tm 100 p. ab alqo
pncto fxo, ƒin mu so dstaam
illas sglis augnte momntis,
mus ille navis ɀalis ōsen vis.

ſt. mu' appinter ilgo eu' qi vdr
ee in obo & tn in co revà·ō c, id
tm ortr x mu ſpctaoris, unde Poet.

Provehimr prtu, trraqs urbesq recedt
ipse n qi in nve e, mu' su' ō ſolit,
si ſedau' sit mare, id èia ipse
sibi qèscre, relqa oa ab ipso
recdre vdnr, c tm ipse sol mo-
-trr, illa vò fixa in eodē statu
pmneant.

Syſma qd jm copricau dr,
coitr pythagro attruir tanqs
auctri, vl ptri, sacrdotibs egypti
à qbs pyth. illd accepisse credr,
qs tester Diog. Leart. xcoaa
1o. fisse à Philolao scta pyth.

ipsumque Pythagoras jam in lucem e[d]idisse.
alii aliunde ejus originem ducunt. —
quidquid sit de ejus auctore idem sys=
tema secutus est Aristarchus, an. 400
ante ipsum Ptolemæi; postea vero lon=
gâ multorum sæculorum oblivione se=
pultum jacebat, donec Card. Cusa=
nus illud iterum excitavit, & paulo post
Nic. Copernicus in Polonia Can.
locupletavit, librumque suum de revo
lutionibus cœlestibus paulo 3º Pont: max.
dicavit.

hoc hypothesis, quæ jam solo pe=
ritioribus omnibus astronomis arridet, &
in multis perfectior redditur, ita se habet. —

Sol in mdio ō longe à coi gr:
:vais crro immobilis stat, adr:
:ogg ō ē plneta; solem pxé
ambit orbis Mercrii, qi crcà
sole spao fré trimestri vrtr,
Mercriu Venus xcipit, qo sole
intra 8 menses crcuit. Sprà
Venere trrà collocat, qo in
mgno orbe seu annuo crcuitu
crcà sole qiolantiis volvr:
Dum intri qtie crcà axes sua
vrtr, adeòqe inr plnetas ē nra
da. Luna crcà telluris globu
individua comes intrà mense crc
:agr. Sprà orbe telluris ordn

sqnr alio plnta, ut mars intrà biennium Jupitr & satellbs intrà annos 12, sat: & satllbs intrà an. 30 suas circà sole conversioes absolvunt. firmamentum stlis fixis fxum mnet & immble. —

Newt[2] hoc systma ab attracoe pdre introduxit & x istâ lege demnstre.

Systma Crsii in hoc propiè à Copernicao dsgr, qd Crsi, terra & stlis sglis sglos vortces tribuat, qbs vlt turbne qodam in orbe agnr, de qbs in physicâ egims. —

Ide terrâ tlt plneta ideo

ttn immotam sibi vdr defendere,
qua und c cribs ambientbs cir-
ca cnrw su solemqe abripr, qd
absrdw vdr, c sui coi notsmu
sit crus illd immotu di o poe,
qd & qtie crca axis & qstannis
crca sole crcmolvr. —

Sysma Semicoprncanus ph
dc Tychco & Coprncao aut ptis
inr utrmqe mdiu e, Tycho n
tellri oe mtu adimit, soli 2 m
qcedit scil. annua & diurnu,
Coprnc, oe mutam annuu q
diurnu soli adimit, & utrmq
tellri adscrit. Longo-montan

& alii diversia ipsorum conantur soliq; motum annuum relinquunt, tel- lui diurnum attribuunt. volunt vero hi auctores tellurem in medio mundi positam à circa neq; recedere, hoc est, alio non transferri, sed circa axem nihilominus singulis diebus circumvolvi, ita ut telluris revolutio di- urna circa axem in omnia sidera quadam apparentia redundati, & sic non inducatur præcissimus ille motus diurnus, quem in cœlis admittere co- gimur Tychoni. verum hoc hypothesis non gratia est Kepleri nulla, de qua infra.

Clus.

Hypsis Copernicaa
ē ingnosa & sola
sustneri meretr.

Pr. 1º Sol ac ştlo fxo ab or-
-tu in occu q'tid frri vdrenr,
si trra mto diurno, crcà polos
Boreale vz & ausrale ab ocde
in ornte vrtrer spao 24h. hnc
eadē ncliu dierumqz veissdo in
hypsi trro mto. —

Pr. 2º sol mu annuu sb Eclp
ab occu in ortu here vdrer, s
trra ab occo in ortu crcà pol
Zodiaci trrstris dsntes à pol

diurnis seu eqris, 23°, 29 orbe mg=
=nu qstnnis, pragraret, ita ut in
eadem cœli ptes insbles axim
sui ser dirigret, qo mu eade ſtel-
=pestaw. varietas, & sol vdrer mdò
ad Trop. Cancri acdre, mdo ad
trop. Capricorni redre, hyeme q
& estaes inducre, qbs, stante trā
fruerem.

D^z 3° Si orbita trre ellptca
est (qles tpriur plntarum om)
ita ut tellus in 8vo Cancri
=stuta soli propnqior est seu
prihelia, & in 8vo capricorni
remotior sive aphelia, mnfstue

sole, et in Capricorno appareret, five perigeum, et in Cancro cum five apogeum. — De stationibus, regressionibus, &c. planetarum, quo pulo modo in aliis hypothesibus explicant, dicere hic supersedemus; dicimus objiciendas quorundam quas recoxit auctor anglicanus, diluamus se mente New^{onus}

Sol: Obj:

Obj: 1° si terra moveretur s mus sentiremus: ai: 2. —

R. Dis. maj. ni aequabilis sera c. sc, N. Intus navis v: g: ... ipse aequabilis sit neque ullis flu ... tibus agitetur relatum, sentimus

medium ~~[struck]~~ autem in quo mota terra esset perfecte serena & tranquilla nec procellis unquam vexaretur.

Obis. 1° Lapis jactus à summa turris non decideret ad pedem turris. 2° Globus è tormento oriens versus occidens, citius pertingeret metam, quam si occidens versus projiceretur, quia versus oriens fertur etiam vi tum illâ quam à terrâ impressam habet, tum illâ quam projiciens communicavit; atqui: r.

R. ad 1um lapidem pervenire ad pedem turris, eo quidem licet perpendiculariter, seu parallelâ turri, sed diagonali propter duo motionem, quas habet, alteram petendi centrum, alteram comitandi terram in suo mu.

se siqs in nugio vlesmè profe:
:sto globo dejciat à smae mali,
glob, ille malu in mu so ȝcom:
:stabitr, & ad ejs pde pveniet, sd
in lēâ diagali, qpà jxà leges
mtuu cnabitr utriqȝ detraoi ob:
:sprare, vz ō vi cnpeto, tu mu
pavis, i qd snsbltz appreblt sqs
gerà nugiu int globo cadnto obsu
R ad 2m cN. ans. qvs ſi glob,
ovie vis; emss, feratr vlcae
auctâ ppt vi impressâ à
projente, tr ō icrcó mi spa
alvè pcurret qs si tra imta
:rct; rao ē qpà unū tra sbi
:labitr & eād vlcae progrēdi

qp l'ardi coicurat: 2 lapis illâ
vi tm promovetr 2bvè in orie,
qp à projente acprat. Qd si ad
ocd mittatr lapis tnu ²ale &
vò in orie relabetr, ni trt, sit
impt, projentis ut mtu à trâ
impressio destruat: sd tu spaio
2bvio, qd aliàs pcurreret lpis vers
ocd, ipsa tra absolvet in orie
progditr.

Inf. 2 alter glob, pcurrit spaio
lngi, altro d tn apetè vdeams
utrmqs spaio idd metiri. >.

R. Dis. Ill. pcurreret spaio
lngi, ablutè C. 2bvè cr. hoc oo
pt acplo nrgii jxà notas mtuo

leges qp felicissime explanz. Si in ha-
:ugio si glob, a prorā vis, puppi
projiciatr eâdē vlcae quā nvis in
pte ōaria fertr, vs projois impres-
:sa globo tm prorsè destruit tm vl
coicatā globo a mu nvis ac proin
glob, vi se gravais reva incipiet de
:cidere in lra pperli, iqp observabit qq
immint, prcl aspiciat.

Qd si vs impressa deblior sit
vlcae nvis, glob, sqetr otraoe à no
:gii mu acpta, id tn tridi, qua
ontota, tn ips vlcais a mu nvis g
:bo coicaa destruitr, cis tn qi in
nve st apparebit glob, ferri p lo
vo se mui drcte ōaria: o vi glo
:vis, pte oppa, id nvis mu so sp

perrit oqlè illi spao, qd percerret
glob, si nois qèsceret. — brevtr x=
=prià ïprtuo ē oa in nve mta eqdē
sit, inr se vl srvare, vl cmutare,
qo si nvis inta pmneret. z idē
experiremr in hypsi tra montis. —

Hnc mrtò tn clgre lct qp dffle
sit judcre de mu vo et mu apprnti:
nqs sqp in Jove aut Sat: degret nqs
dvaret se saqp oa pppuò revlvi, qp
qi in nve ē jdcat ō globo, id se
sm nvemqp mvre. —

Obj: 2o ambitus Tra ē crctr 25020
mil. angl., nrais mil. angl. 69 $\frac{1}{2}$ ad
1o: z si qtdie Tra crcà axid vlvretr,
debet sglis h. cmetiri mil. 1042 $\frac{3}{6}$:
ai tnta rotao ifcit ad ides evrtndas

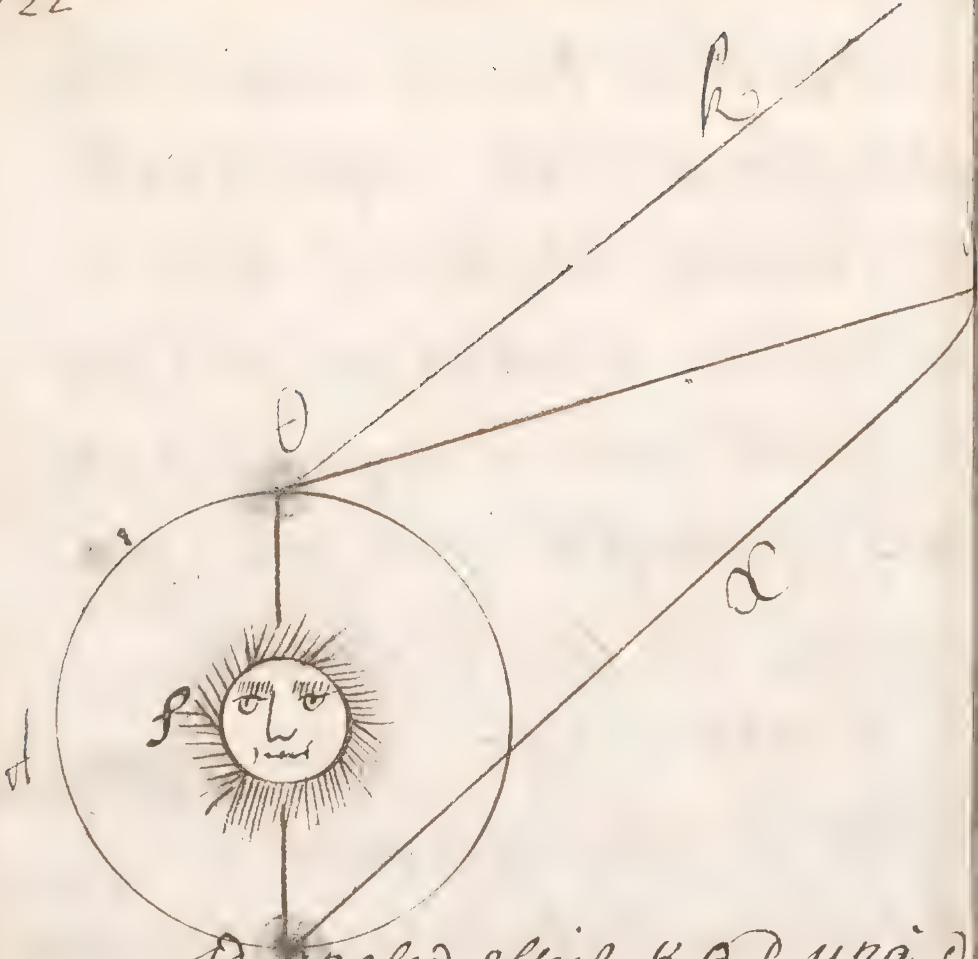
laidesq ex specie prjendos semo
tang. o' aeqris pelli: & &c.

R. D. ult. min. ni alqd obstre
e. sc, cv. cra in tro specie psta
vi grvaris so detnentr ne avlent,
hoc a i lnge mjr vi cnrfga q
mtu tro acqsta: vro qdm e qdos
cnrpeta mnuitr ab oppa vi cnrfg
qs ex tro mu rcpiunt, eoq mgj
qo mjr e dstaa a polo, qa in
mjri dstaa vlcror e mus, ac p
-oin vs cnrfga augetr o vlcae &
sc mnr erit vs cnrpta sb aeqre,
mjr sb polis.— Ai hoc ita se
here expra feta in pndlis trdi
oscellantbs ad aeqre, vlci, ad pol
vdnr satis dmstrare. —

Obj: 3° Si tra mu annuo dretr axis illi, mûs ser sbipsi ē prll, si ser prll, sit, descret cylndrū oqld orbto mgno: r ejs poli ō ser respcrent easdē coli ptes aut stlas fxas, qd mnfstè 2pat xpriā d. āw deprnsa sit fxarū prlxis. —

R. hoc ee uncū argū x asmiā petitū, qd ulli, sit momnti ad hyp=sū Copnci labefctandā. Jd ut ilgatr.

Sit Ī A Θ orbita tro crcà solē S, sit Ī X axis tro, & Θ K axis eundē 2pret in pclo Θ semdrcti=:oē proi prltā. — Spnams Ī K axī tro vrsū stlā P dirgi; & tūc evns axī tro o poe respcre eandē stlā, ē tra sit revoluta ād Θ K.



Sd anglus effect K Θ P unâ c
leâ Θ P (qo tra & stlla ǰngit) eq
anglo Θ P S (p Theor. 3tiâ Epiling
geo.) sb qo diamr S Θ orbito trsti
ōsspectr in stllâ P. Si vr tra mo
-etr in orbe ta immenso ut smdi
-amr sit solis dstaa â trâ in

dvrsis orbtæ ptbs v: g: in ♀ & ⊙ fclé
eet cgnscere qrâe angli ♀♂⊙, & con-
tr raoe ♀♂ dstaæ stlo ad ♀⊙ di-
amrio orbtæ trstris. Vid. Trig. plan.

Rent ir Asmi tntæ ee dstaa
stllarū fixarū ut diamr orbtæ tr-
stris ɔ̈prаoe sit æqua mnsra,
nc ullā heat raoē ad tntā dstaā.
hnc angl, ♀♂⊙ ō pt ullis insmis
tm accrtsmis citrá errorē obsvri,
nqp á Copnicis gratis fngitr hoc
tā immnsa fixarū dstaā. nō ē
sit vldè proble stlas ee totidē sles
no sles, nēe ē ut infiēs penè mjr
sit illarū dstaa qp solis, ē adeó de-
blé luce fulgeant, & apparentes dia-

:mri o augeant, ne qdm Telescpiis
xqstismis. Si Dstaa à stlis Ducetr
in 300 ptes oqles, & sqs propqior
ect illis 299es, vvidor qdm appre-
:hil lux stlario, sd diamri o fo-
:rent mjres apprente, qià in hâc
dstaá ejdē ect ~~aut~~ mgnis ac in
:telscpio qd 300es auget diamrū.
— Dein & illd suadet dstaā stl-
:lū ee immnsā, qd sna ō nos in
& stlā alqз ptensit ō illā grāū
occlat, sd in insti, qd in aliis
Dlnctis o fit, si nemp. satles Joī
aut Sat: discū ejs ptensrat.
Hec à &c. ejdi de dstaâ stl-
:ru sul cllaa illd cuncunt illar.

rotaco crea tra orò incredbli

vlcae 24h. pt ft dbre, si leco ke=

=at systma Tychon. →

Ds. Cylndrus ille à Dolo frri

descrpt, myi cet 1ª mgdnis: r

sb lndret anglo snsble.

R. Tr. ans. cr. coa. Dsps inr

stla fca & hunc cylndru qd

stla sit lucida, qo ā lucda st à

lnge ösp ei pst qos anglo sns=

=blo ō sbtndunt ne qdm ope te=

=lescpioru

diū in eode pallo v: g: in libra

y ariete dirsis anni tpestatibs tra

versaretr, tra m mj, spatiū emnsa

ē iñr Lbra & ariet, qp nos vrs;

utrmlbt polū progrediendō.

R. Dspatū ee qd si nos vrs;

polos progrediamr hētō insble

ōtuiō mutems; at vō x mu tre

tla fit insblis mtao ru stlariū

ob imnsa larit dstaa.

Qs an hoc Systma sm

ut thesi an ut hypsi

tm?

Obs. Ld is admittit ut thesi

hoc systma, qi ōtendit pō vo

ōpato sc here qd tra muatr,

adeōq de feto mtū tra adscit.

— Iis ā ut reypsā qi an revá
bra moveatr nche ō ɔamnat, ps-
to tn ejs mu eandē fore rūd orū
feriē & nae phena bné ɔplri ōtr-
dit.

R. nos admittre ut hypsiddat,
arga qidd affrunt cprncai, qbs,
ejdē maa patilz, nil dmstra-
oe abēē qs creddrit.

1° petitr ɔ portioe inr dstaq
& periodos plnetarū, qo 1° Kepp-
lero nota fuit ɔ obsvaoibs. pstrá
ā Newo. eā dmstravit ɔ attraoe
sā prió. sqi. eó venior ē plnta
cnro si mús, eó citi, revluoē
sā pfit jxā legē inviaā &
imtablē, ita ut qra prid pario-

:dicoru sqantr raoē cuborū ds=
:taē orbitaru à cntro circà qd
vlvuntr, i.e, ut qdru pris pe=
:riodci uni, plneto circà cntrū gy=
:rantis ē ad cubū dstaē ejdē
plneto à cntro, ità qdrū pris
prdci altri, plneto circà idē
~~pctū~~ cntrū vlventis ē ad cubū
dstaē ejs ab eodē cntro.

Sc v: g: in Satlibs circà Jo=
:ve gyrantbs, Satles verior Jovi
dstat ab ejs cntro diam. $2\frac{5}{6}$, &
periodū suā pficit. 42^h. Satles u
:motism, periodū suā pficit 402^h.
Dic r ut 1764 qdrū nri 42 adi
:1604, qdrū nri 402, ità $\frac{4193}{216}$ cu

pri $\frac{5}{206}$ ad 4^{m} pw proportionale qi
invenietr circtr $\frac{450090}{216}$ x qo ultmo
nro si extrahatr radix cubica, in-
:venietr $\frac{76}{6}$ seu 12 $\frac{4}{6}$: scilicet ixà las-
:mos 12 $\frac{4}{6}$ diamri Jovis. St ipsa
dstaa remtsmi satltis à cntro
Jovis. Jà vò ō Lna circà trā
mveatr, si sol m circà eandē
moretr, dbret ee eadē protio inr
priodos & dstaas lunæ & solis
circà trā gyrantiū, quæ ē inr
satlites, circà Jove & relqos Pla-
:netas, circà cntrū vlventes; id
tū protio ō invenitr: w Lna
periodū sū pficit d. 27, & cgrser
dstare à trā 60 semdiamris

Tre, sed a annuam suam periodum ab-
:solvit D. 365: dic 729 quadratum
numeri 27 est ad 133225 quadratum numeri 365,
ita 216000 cub. numeri 60 ad 4tum numerum
qui inveniretur circiter 39474074, cujus
4ti numeri radix cubica deberet dare
distantiam solis a terra, si circa hanc
volveretur; radix autem cubica istius, est
tantum 340: sed asmi invictis rationibus
demonstrant solem distare a terra lon-
:ge ultra 340 semidiametros terrae;
immo distantia illa superior est plus minus
10000 semidiametris, in qua distantia
non nisi post longam annorum seriem
posset unam revolutionem conficere, si
eandem regulam cum cæteris planetis obs-

:varet. Qd si Tra circa solem mo-
:veatr, eadm ab orbs srvabitr pror-
:tio: ai nla e rao xtmandi hanc
mlam ab orbs aliis ostntr obs-
:wari, uno sole xcepto: 2 dendm
e Tram circa solem movi.

2º argio hoc mo propnr.
Tra alqam venioi e stlis fxis
p immsm spam, qp aliis pncibs:
ai stlo fxo o descendunt ors;
Tra: e tra orbtam sa circa
solem deserit. P² maj. Flam-
:steedius Asmorm peritsm, & ob-
-nvaorls p 7 annos gmios fctis
invnit stlam fxam polari mjrē
ee solstio estio qp hyeali, iqp p
45" circte: 2 tra solstio estwo milto'

vicinior stllis fxis, qp hyrali: —

Pstrus hoc argūm mn's urge
volunt Zychci, qpā m qp maxi
systmti Copern. favent, Greg.
Keil, ngant ullā snsblē prlxi
in stllis fxis detegi pptr imns
dstaā. & e ne qdm in solis pr:
:lxi oes ōvniant, fclē pluct in
m pcritsm, decpi in stlis fxi
qarū dslāa ipsis auctribs ē ad
mnmiū 9000es aut 10000es mjr
dstaā solis. — videri pt Dnus
Desaguliers de prlxi stlarū
à Dno Bradley profess. Sav:
:liano invntā. —

3ᵘᵐ argū petitr à figurā Tr
Sphæroïdeā c axis

æqaori, longior ē polari: rō
qbus cus crcā axē rotaā prió
llvatr ubi mjr ē dstaa ab axe
mūs; i qo prpter vī crzfgā mjre
iǹ crclo mjri, ubi vlcas augetr:
poā si Tra staret, ipsa aqarū
vs ab æqre defflueret vrs; Polos,
qiā fluidū ser ad declvia de-
-currat hce ē, ni qidqo obstet: hc
a nil aliō ēe pt qo tellris ro-
-tas ex qā fit ut vs crzfga æqi-
-vleat grvaci aqarū vrs; Polos.
hnc refuta, mnet ōs, ille stcept,
anctris cōdā eccentricris.

Textus Scrip. Sacr. qbs stablitr
inus solis, & Tre imblas & qbs ni-

nitebatr inqstio Roāa in pro:
:scriptioe Thesis Eoprn., sl se:
:quentes. — Jōs. 10. "Sol ēā Gabaon
ne moovearis....... steteruntqꝫ Sol
& Lna..... Stetit itaqꝫ sol in mdio
celi, & ō festnavit occembre spao
uni, diei." — Psalm. 92 "firmavit
orbē Trē qē ō ēmovebitr". — Psalm. 103
"Qi fundasti trā spr stablaē sā
ō inclnabitr in seclū seclī." — Ecc.
"oritr sol & occedit & ād lcū suū re:
:vrtitr, ibiqꝫ renscns gyrat pr mēdiu
& flectitr ād aqloē &c." — — Hec
a oa jxā regulā S. Aug. ilgndas
ō metphrcē, sē in su prio, ni ra:
mnfsta vl auctras mxa rpct.

§. 4us

De Planetis grad.

Observaões. provio.

1º Planeta eande londes hentes dnr ee in öjoe. sin londes drant 180º st in oppoe.

2º Distaa apprens plncto à enro dr ejs llongao.

3º orbitae plnetaru inclnanr ad plnu lclpco; sed ità paru ut nnqs appareant xà Zodiacu.

4º Si Plneta vdear fcri vrs; o=:unte secm sgnoru ordne, seu in coà, tntas ille drctus dr. Qndo vdr nlu oio tntu here dr stationaris. qndò vdr fcri vrs ordem seu in an=:tià dr retrogrados.

5º Plneto lcus geocntricus ē ille in qo plneta appret spctaori in trrā cllcao. lcus heliocntri, ē ille, qi ex . lc:le detegretr.

6º Ellipsis ē fura ovalis cujs diamr lngr dr axis trnsvrs, br:vior vò axis rctr. spnr hoc fura grari ft plnus secans conu oblqè. focus Ellpseos ē pnctu visi utramq extremae axis longris, á qo ē rctlee ducta ad qdvs pnctu cifrio sul eq:les erunt axi lngri. —

Art: 5us

De orbitis Planetaru.

Cu plnetaru mtus hypsis cNewaa meto felici, explcet, vsu hic in iis explndis hypsi illā uti

Spnims ir 1º dari attraoe mtu

hancqꝫ ēē proꝛtiale q̄nai maꝺ, & in
dvꝛsis ꝺstais xá spho species in ꝛaoe
inversā q̄ri ꝺstaꝺ; diqꝫ poo gꝛvaoeꝛ
seu vis cnꝛpeta, si spcteꝛ prl ē in
ꝛe attrcto. —— 2º in oqlbs ꝺstais
à cnꝛis spharu hóogiaru attraog
ēē ut ipsas sphas, i ē, inꝛ se in
ꝛaoe 3caā diamroru; in ꝺstais
vó dvꝛsis attꝛaoes ēē in ꝛaoe ōpā
x ꝛaoe spharu ꝺrcté & ꝛaoe 2caā
ꝺstaaru invꝛsē, i ē, ut cubos di-
amroru ꝑ q̄ꝛa ꝺstaaru ꝺvꝛsos.

Cnꝛu attꝛaois ē pnctu i ꝛs;
q̄ꝺ cus mtu aut ꝛcmactu impllꝛ
impꝫtu gꝛvaois: tle pnctu ē sol
in hac hypsi ꝛw plnetaru ꝛari-
oꝛu & plnto ꝛarii ꝛu soꝛu ꝛarioꝛ

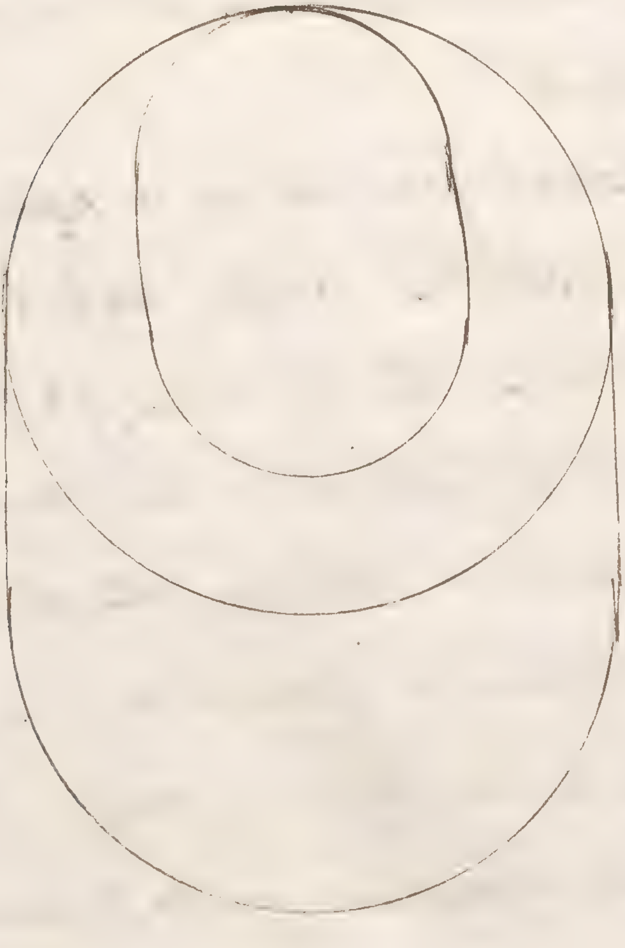
Hic pstis sponams cus mvri mu
unfoi projctli, illd lra rcta ft se
afflctabit, & in illâ perget, dnc ſſe
approprnqet alid cus, à cujs vi attr-
-ctvâ corripietr & x lrâ sâ rctâ r-
-traheretr. ǰcrrent in 2 vires oppo-
cus mtu sel: conabitr sglis insbs
lrā rcta ǰsrvare, & cus attrhens
isti ǰatui rstet & vsi se trqq ad
crru trhet: c vò neutra vis pit
altra vincere, hnc xurgit mtus
utriqq ǰtraoi obtmperans, & cus
ircò lra crva descret. —

Si mtus projctlis plnete v. g.
dirigatr ffpplr in lra à sole ducta
vlcasq ita tmperetr, ut c solis

attraoe ꝓſu oqꝑbriu in ipso attra=
:ois ictis ꝯstuat, tlis plnta crcà so=
:les in orbtá adqè crclari gyrabit;
ne nqꝓ grvao seu vis cntrpeta unqꝓ
impellet ꝓ propi, cntru attraois, nqꝫ
vs cntrf'ga seu conatûs recdndi scm
tang. crcli unqꝓ ab eodem cntro lngi,
projciet.

Docent prró tu ee in oqbrio c
ꝯplu conatûs cntrfgi oqle ē sllcta=
:oi grvais. Qd si vlcas, qâ plnta
projcr, sit aut maj. aut min, qꝓ
ut oqbriu c attraoe ꝯstuat, orbta
erit ellipsis. & qdm si maj. sit ipsa
projciet cus lngi, à cntro, & ellipsis
descrētr amplior crclo, & cus cntrale

erit in ſco isto qi venor ē pncto, ubi
1ᵘ̲ᵒ incepit attrao: sin .min: sit, at-
:trao cnri prævlebit: propiqq attr-
:hit, & descreti ellypsis crclo min., in
qâ cus crrale posdebit focu ze-
:mtiore à pncto ubi attrao incepit.



C. plnetarum orbita ō à slā tm=
:praoe vlcais & attraoe dpndent,
sd m̄ à drctioe mûs projctis qo
pre incipit 1ᵘᵐ agre vis attrava:
si n̄ drctio mûs projctis ō fiat
ppndr, sd oblqè ad lea ducta à
cntro attraois, & si in eqbrio fuerit
attrao & vis cntrfga, descrbtr tn
ellpsis. =

Qò vcnr ē plneta cri cntrali
in fco ellpseos ellcao, eo vlci, mo=
veatr neēē, & qò remtior ē ab
eodem cntro, eò tardi, ita ut area
dscrpta p leas à plnta ad cntru
ductas sīt pribs proportiales. atq
nsi sponams plnta alqes ellpsi

descre circà cntru in fco, aliumq́ qcr=
:ca' ide cntru descre crclu; si mdó
smdiamr crcli. oqlis sit mdia dstaa
Ellpseos ab eode fco, pra periodca
revoluon erunt oqlia; & in oqli ds=
:taā vlcaes tn erunt oqles. undè
qvs varias Ellpses plneta descrant,
pst tn pra periodca ọ mnś inr se
öprari, qp si crclos descrent. –

Sit S sol, B plneta projct, scm
lia DB, vlcae mnri qp ut in oq=
:brio sit c attraoe Solis: c pvrit
ad B incipict attrhi vrs solē; cmq
attrao seu sllctao grvais sit mjr
öaw cnrfgo ptrhetr ad U, ubi au
:getr attrao ob mnre dstaa à cn

attraois, & contr m̄ augebr vlca s
descndntis plncto, & sc fuiet ad T
iode pre qo à B ad U; ubi spoims
bas is trnguli. TUS tnto mjre ēe bsi
trngli. UBS qntō fltra hujs st lng=
=a crurbs illis: & sc areæ illorū trn=
=glorū erunt aqles, & aqlbs prībs ds=
=cripte; idemqz dicndū ē de areis oūs
illorū trnglorū.



intris planeta acquirit majores velocitates des:
:cendendo ad D, & ab D ad R, unde impe:
:tus acquisit, quo descensu in singulis punctis
à loco B destruat omnes impressiones gra:
:vitatis receptas in singulis punctis ab eo:
:dem loco B, tandemque ejus centrifugus,
& sollicitatio gravitatis fiant equalia, quod ac:
:cidit in puncto A, ubi planeta est vi:
:cini, soli accedere. Jam vero si in puncto
A cessaret attractio, recederet planeta
per tang. AC; cum vero illa permaneat, e:
:plurimque ejus centrifugi, quod incipit
superare gravitatem post Z (in quo pun:
:cto erant in equilibrio) faceret pro:
:vehere planeta eadem vi fere ad G
quam ex puncto Z ad A; & in G equa
erit sollicitatio gravitatis cum illo ejus

cursgi. dum procedit planeta versus O
prevalet illectao gravis supra comple-
-aius cursgi, iqq cnue dunc utrqq im-
-petus pr initium acquisitus invicem destruat
in puncto B, àqo planeta descit per ll
eàdem ratione, quâ 1o incepit.

In qbs vò punctis, & quâ proportione
vires hae diverso augeantur & minuant,
vid. explanationes supra in Segorne, Desag-
-uliers, Keil &c. In figurâ vò notabis
A esse perihelion, B aphelion, orbi-
-tasqq ejdi ab orbs planetis (si satellites
aliquos excipias) describi; ut 1us invenit
sagacissimus Keplerus ex observationibus à
Tychone factis. i m meminiris omnes
planetas à sole, & solem versim
ab iis attrahi, oesqq generaliter ab aeris

vi protractā dnsai cris altrhentis &c.
unde fit ut sol mio ppuo agiteti,
ō tn lngè recdat à cntro coi graaj
ob ingnter dra inr qrae mao in
ipso & aliis: hnc tn algm ptrbantr
plntaru orbte, nqq st perfè ellipses.

at merito qi pt qā raoe fiat,
ut plntaru mus ō retrdenr x rs-
-tiā mao fluido, qo in colis anteà
spuims?

R. mus sos plnetas poe diutsm
(14) ōsrvare, qia retardao orta x rstiā m
-dii ità ē exgua, ut nlatns sit sibl
-spoams n colorū vastsma spacia
-re repleri; hic, ut ōputat New. i
alne 200 mil. spra trra si eousq
xdretr atma, foret rarior qo a

specie terre, in rãoe 75000000000
00 ad 1, & hinc si planeta Jovis re-
volveretr in medio ejdi densais p
ann. 1000000 ō amitteret x restiã me-
dii ptes 10ᵃˢ 100ᵃˢ millesimas si mũs.
Hinc colliges nullã ẽe neãem as-
signandi cũ Jesuitis illgiam sa sero
angelus, cuiqp planeto neaut in
mu so cessent aut à tramitibs sũs
aberrent. — Art: 2ᵘˢ

De luce, figuris &
Densae Plnetaru.

Plneto oes & hoc na terra st
ca opaca: si n telescopio eas
aspicias, invies lat, ĩ qd soli ob-
vrtr, ẽe luminosũ, ĩ vò qd avrtr ẽe
obscurũ: hoc 1ᵘᵐ detexit Gallilaeus.

poá umbras soli oppa moic ou. crus opacorw pst se ser projcnt: ? ipsi pp se opaci st, lumenqp suu à sole mutuantr.

Ds. Luna stellis lucidior apprct: Sd ipsæ lucent luce priâ: ? & luna.

R. Dspaes ẽe qd luna sit longè vçnr trra qp sint sydra; qo si oqè vçna eent ac ẽ luna, õ ẽ dubtan-dw qin trra illorw igubs ʒflagra-ret: Luna vò si in eade dstaã ē stlis nlo mdò ʒspcretr.

Qd sint fure sphoca hnc ʒlg qiá lra in ipsorw crîbs, qp ptem lucdas ab obscrã sejngit, alqndò rctà, alqndò crva, qndòqp ʒvxa ex pte lucda, & ʒcva a pte obscr.

& vcè vsâ prò dvrso situ spectatoris, seu plneto aut solis: qq dvrs, situs ca̅m ē cr alqn̄dò mjres alqn̄dò mi-nore ptis illmnaæ portioe vdeams, qo oia ōdunt plnetas ēē cra sphca.

Ō. ēē hoc cra prſè sphca, īd here diamru aqaoria diamro polari seu axi longre, oio proble ē. He ēē cus Joos ta Flamstedus qq Cassini invnere, tlcmqq ēē trra fura crtu ē. —.

Qd ad pndra crw aqliu vrs, plnetas attnet, ipsa augentr u-bi cra plonetis vicnra st, & mi-nuuntr ubi longi, ab iis remov-entr, stqq in dvrsis dstaīs in raoe dstaaru 2caâ invrsè. Prò ut

dtrent matei qua sint hoc prdica
cru aqliu, v: g: satellitis in Jovem
& sole, inqrunt 1o proртioe rad. or-
-bitaru in daā dstaā, v: g: 10000:
sc inuniunt rad. orbita satlis extmi
Jovis ad rad. Jovs ēe ut 24.040 ad
10000; tumqe cgntis prits periodci,
ēe ut 1 ad 259.63 faunt proртioe
oppam, ut cub. radii satlis ductu
in qru pris periodci Jovs ad cu-
-bu radii Jovis ductu in qru pri
periodci satlis, ita pond. in sole
ad pond. in jovem in aqlbs ds-
-tais, qd inuniunt ēe crctr ut 1 ad
$\frac{1}{1074}$.

Hnc m innescit qnas mae in
sglis plnetis, hoc ē n ut ipsa pl

innescnt in dnsaes plntaru; rspndra
cru sqliu & hoogioru st in sphas
hoogias in spzcizbs spharu, ut sp=
haru diamri; idsòqz spharu str=
rogiaru dnsaes st ut pndravilla
applcaa ad spharu diamros.

Art: 3ius.

De Planetaru staoe retrogradaoe &c.

Si Plneta vdeatr ferri vrs, o=
riente scm sgnoru ordne seu in
coâ, mtus ille dr drctus. qndò
vdr nlu orò mtu here, dr staoari,
qndò vdr frri vrs, ocdem, dr retro=
grade.

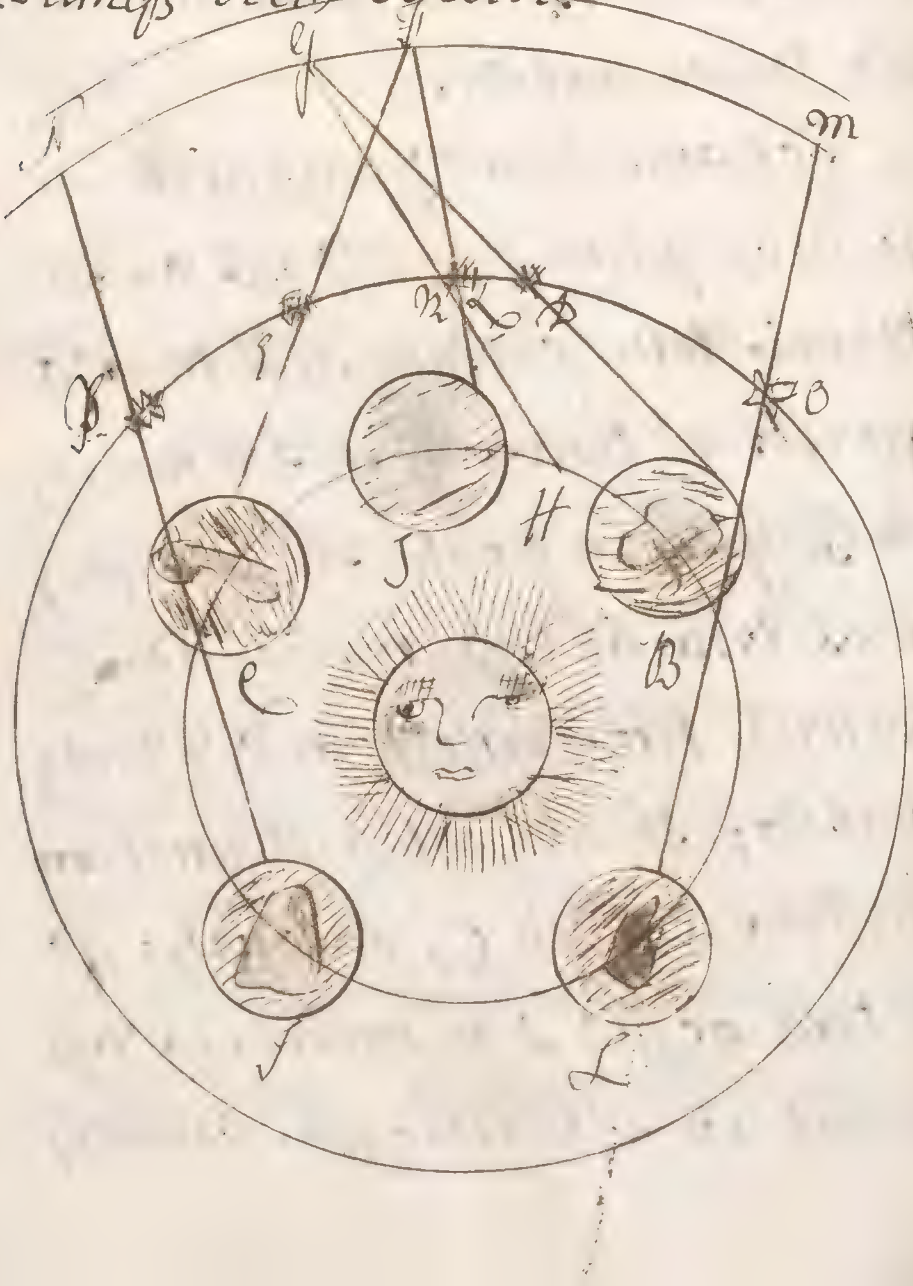
Sit Sol A, sit crclus trra annu
B H I. C I L: crclus vò alcujs

x ſprorbs plnetis v: g: martis, ſit
O D Q R E P, cujs tm arcu lustret
plneta dù trra ingru crclu ab=
=solvit: ſit firmamntu seu fxaru
lcus in F G H: ſit trra in L, plnta
in O, tu ille cerni in pncto fmnti
no: progrdiatr trra ab L in B tu
plneta crnetr in G, & qonia ſcm
serie sgnoru proceſsiſse vdebitr,
drcts vcabtr. tu trra à pncto B
ad pnctu K pviet, & plneta à
pncto P ad pnctu Q, atq adhc
vdebtr in G, & dr stacariu. Qd si
trra trnſierit in I & plneta in R,
hic apprebit in F & iā à sgnoru
serie regrssus vdebtr, tumq retro=
=grads dcetr, pstmdu trra ante in

C, si planta sit in E adhuc cernetur in F
& stationaria iterum apparebit. Denique cum
terra à puncto C pervenit in D & pla-
neta in D ipse cernetur in N, cumque
secundum seriem signorum promotus videa-
tur, directus vocabitur. —

Ponamus terram peragrare in-
so orbe puncta A B C D E F dum
mercurius totum circulum G L M N O
percurrit: si terra sit in A & mercurius
in G, ipse in puncto H conspicietur;
si vero terra ad B & mercurius ad L
pervenerit, hic cernetur in I, & directus
vocabitur; sed ubi attigerit punctum
M, terra existente in C, stationarius: quod
si terra occupet D & mercurius N ap-
parebit in Q & retrogradus videbitur;

Ad si tra in E ꝯstuta, mrci, fue-
:rit in O, staoarii, censebitr. Dnqꝫ
e tra in F vrsabitr, & mrcurij in
G, ipse ad pnctu T referetr, rur-
:sumqꝫ drcts ~~vdebitr~~.





Art: 4us

De Dstais Plntaru
& mgnudnbs.

Not: 2ces solere dsgi plntaru
dstaas; altras relvas; altras abluas.
dstaa relva e ipti, proprtio dstaar-
u qp ipsa va dstaa. Dstaa ablua

c̄ va dstaa ꝑ alq mnsra dtraa.

Dstaa ꝛlva mdia satis accra è
inviri pt ꝑ ꝓrtioes inr qra prw
periodcoru & cubos dstaaru, jxà
ea qe ſpra dxms. Dstae n hoc mdo
inunte ō drunt sblr à dstaís qas
dvrsi astroru obsvaores invnerunt,
stqr inr ipsas ut plrmu inrmdiae.
sc in hypsi Coprncaâ pra priod:
:ca plntaru crcà sole in diebs &
ptbs diei 10alibs ità se hent.

Satrni 10759.275.
Jovis 4332.514.
marty 686.9786.
Terre 365.2565.
Venris 224.6176.
mrcrii 87.9692.

Postis his pribs periodcis, &

smptis 100000 ptbs eqlbs pro dstaâ solis à terrâ, dstao invnto ꝑ pra periodca ō mclu: drent à dstais ab astnis obsvais, ut patbit ex tab. seq. Distao à sole rbvo ad

Dstaa Tellris 100000 ptiu:

1° ꝑ pra priodca.	2° Ixa Keplerum.
Sat: 954006.	951000.
Jov: 520096.	519650.
Mar: 152369.	152350.
Ven: 72333.	72400.
Mer: 38710	38806.

3° Ixa Bullialdum.

Sat: 954198
Jov: 522520
Mar: 152350
Ven: 72398
Mer: 38585

Dstao ablua plntarum remotiorum

(15) ō ità fclè inveniuntr, ut cllgre lct x
iis qo dr prlxi dxims; nō ut inveniatr
:dstaa abluā, prius invenienda ē prlxis:
ut solis prlxis accratè detegatr, a-
:vdé expctant astmi; mense mariū
1761 invri qm adhc inveniō puerunt,
dstaa trrē ab illō ē crctr 1900 semd.
trrē. Ponatr vr trē smd. crctr 4000
mil. & dstaa solis à trâ erit 7600
:0000 mil. hoc psto invies satis ac-
:craè dstaa plnetarū à sole, sv
proprtioē eodem mō intas qo prò
dstais rlvis.

vir his dtrandis [illegible]ā tm x dvrsae
mnsraru qas adhent, sd m qià ōdu
dr unâ alqâ prlxi ōvenerunt,
lis ē inr astmos. unde sit sqns tab.

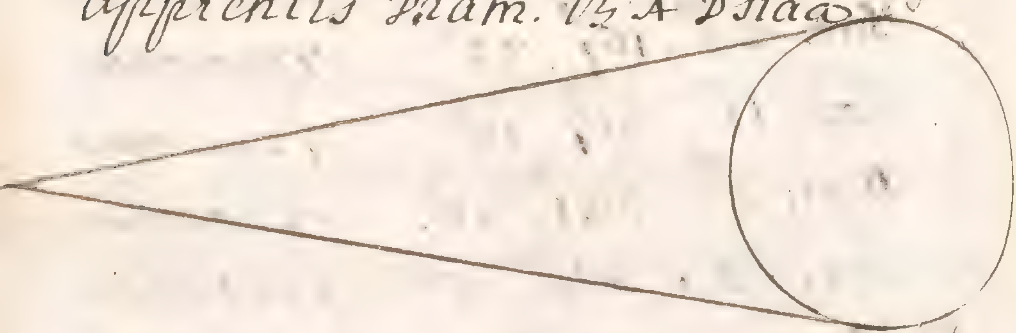
dstaarū mdiarū & prū prodcorū,
q̄rt coitr æstmantr.

Rev. circa Solem.	Dist. in mill.
Sat: 29 an. 167 D. 22 h	777000000
Jov: 11 an. 314 D. 12 h	424000000
Mar: 1 an. 321 D. 23 h.	123000000
Ter. 0 . 365 D. 6 h.	81000000
Ven. 0 . 224 d. 16 h.	59000000
Mer. 0 . 87 d. 23 h.	32000000.

Luna circa terras vlvr 27 d 7 h 43',
& dstat ab eade 240000 mil.

Dr magne obi prcl dissiti ju-
dcamr x qntae angli sb qo appret
(hoc dr apprens mgdo) eqr hic
angl. majr. auil mnr pro raoe ds-
taæ: anglu hnc seu diam. me-
tiunr asmi telescopio, et affigr

Ic in fiurâ seq. angl. BAD ε ang. apprentis Diam. BAD staa



Cis vò auctres de Diam. Plne-taru apprentbs litigent; acpe tab. Diam. p mil, & prodoru crcâ axes prt coitr osmantr.

Period. crcâ axes.	Diam. in mill.
Solis 25^{d}. 6^{h}. 0'	763000
Sat. incognita.	67000
Jovis 0^{d}. 9^{h}. 56'	81000
Mar. 1^{d}. 0^{h}. 40'.	4440
Ter. 0^{d}. 23^{h}. 56'.	7970
ven. 24^{d}. 8^{h}. 0'.	7900
mrc. incgnta.	2240

1 Lun. 27

Lun. 27p. 7h. 43'. | 2170.

Sectio 5a

Theoria Solis.

Art: 1us

De Solis ore.

Sitné sol eus fluidu an diversu & soldu dspuant Phi, st qi eu x auro liqao ꝯstre, aut stem auro fso cremlgau ce delirant. Keir:cher in mgnâ arte lucis & umbræ ꝯprat sole c oro ebulliente in fornacbs fusoriis, tles, inqt, ostus volvit ut mari cidã igneis fluc:tibs agitao, undarumqꝫ vortcbs curvao, haud abslis videatr; item lassn, vidisse testatr acellati

tubo. Idaſ solis crfriaſ instar frun:
:tis ago ebullinte; qdmdm ingens
flamma vnto agitatr & fluctuat.
Vüſ qd in crfriâ vdeatr sol
vlt fluctus igneos volvre, ī ö git
x mu & fluctaoe ipsi aëris cr:
:ca tra; x qo fit ut rad. pillu
trnscuntes vet fluct, in sole ipren,
qre tn in Lunâ telscopiis deprn:
:di pst qsi fluctus agtai crcà
eјs limbu; qos tn agta aër dxt
xhcrct, & flct, nli ibi ee psent,
ubi eos tubus xprabat. — Insupr
hitâ raoe dstaæ solis à trrâ,
qo ē ad mnimu 80000000 mill.
ut tubo detegrentr fluct, in sol

ter dicto, qp se dicunt deprendisse, observent flct, ee alti circa 1000 leuc. in limbo solis, debrent a fingi vnti terribiles circa soles, qi tntos fluct attollrent. —

Qre dicendu pti, vdr cs Neuwais, soles ee. cus sphicu, dnsu & soldu, & qsi ingentes trras vehntsme ar=dntes, adeoqp ejs luces oriri ex flammis qas superficies ejs adusta ejaculatr, ob dstaa ejs a fcipms solis ē vexaes, id apprct nbs tanqp plnu crclre, qd dsous dr, & spactus in medio, qd reva e in sprcie, crnu disci vr. —

Ds. si sol cet trra ardens, de=

:beret ejs maa pst tot practa
socla, ee notabbr diminta: 2 diamr
ejs jm appreret min. qp antqis
asmis apprebat.

R. Dis. Cons. si antqi acraisme,
& sne mnmo errore obsvassent Tr,
sc, ct. coa. spnams n antqos as:
:tnos obsvasse 4000 abhinc an: ejs
diamru fuisse totde minutoru
qt jm invenitr, diam. qp ab illo pre
dmnuta ee uno mill. qtannis, ade:
:oqp ee jm 4000 mill. min. qp antea;
hoc mlao tam exguu prueret qad
appreias, ut fele errare puissent
antqi. si n tre diamr. 8000 mil.
ponatr, solis diamr erit ples qp

896000 mill. & sit plsqp 87 maj. terre diam.; jm vò 4000 ē tm ps 100ᵃ 74ᵃ ps istius diam. & contr diam. tm minueretr p $\frac{1}{8}$ $\frac{1^i}{1}$, si pnatr ēe crctr 22': jm vò antqi in pte suā 1ⁱ fclò errare perant.

Inst. tm pris spao slem debret ille ignis defcre aut xgi.

R. Dis. ans. si nil eius srvaret Jr. sc crt. ardor solis frtè ōsrvatr ab ingnti mole cris pti ab aioe & 22aioe prclaru ignearu, qas emittit: dein. qs scit anō maam inviat nova qs depascatr, qāqs flammas sas nutriat.

Art: 2us

De maculis & faculis solis, ejusq[ue] rotatione circa axim.

Maculae dicuntur partes quaedam obscuriores, & faculae sunt lucidiores ac ultra flammivomae, quae identidem apparent moveri in disco solis. observatae 1o fuerunt à Gallilæo an. 1610, non quidem stabiles in eodem loco, sed mobiles, ab an. 1650 ad 1670 raro ultra unam videbant animi; unde frequentes detexere, quod ostendit eas generari & perire,

Modus observandi omnium has, hic e, xcipiantur rad. solares per tubum longum 4 aut 5 pedum, sed paulo magis convexum

qꝫ qđ varius ē ut vdeanr oba mdo
ordinrio; dein in alqā dstaā ex-
-pnatr charta alba, in qas cadant
rad. solis ꝑ tubus trnseuntes: -
si hoc fiat in lco obscro in qo
ꝗ patet ullius adts rad. solis ni
ꝑ tubus, apprebunt distsmè oēs
mclæ siqæ sint in sole, ꝰ sepè
in eo nlla deprndr, & alqndò plrs,
Color earu ē aut nigr aut
coeruls: fclarus vò ē candidè splen-
dns aut flavus: mclæ qndò ap-
-prent propè limbus mori, dnsres
& mnres st, rariores vò & mjres
in mdio sole, qđ fit ex rotndae

globi solis. fura maclarū ē in-
:certa, uti & mgdo, alqndò ſt qd to-
:tam Europam xcēdant longdē & lade,
alqndò mjres. — origo earū ē
admdū incerta, olī plnetas ee
asrebant crcà Solē revolventes; alij
vdnr ēe nubes aut crassiō vapres,
qos solis ardor evexit. Qidā pu-
:tant eas ēe vlt fuligines aut pa-
:buli solaris relqias & qsi cineres.
Crsiō dnqē fngit eas mclas ēe cru-
:stes qasdā 3ū elmi prtclas, qas
à cntro ād sprciē propellit, qæ qā
tenaci, aliæ aliis adhærentes in
molē opacā crescnt, ac in so-
:lis sprciē tandē fīmnent, do-

:nc vl ab ipso sole resorbeantr; vl
mtu mae 1ª llni dssolvantr: prob:-
:li, vdr eas ēē dnsacra solis spr:-
:ciei adhorntia: —

mus illarū ē rulris ab ornte (16)
ad ocdem, ita ut una revoluoe crcā
ipsū diēbs 27 absolvant: undē
pst apprere d. 13 ½ ōnuis, & latere
totidē. ille ā mus tlis ē ut ejs
poli ō sint ppples ad eclpca, sd
inclnai, anglūqp faentes crctr 7°
ē axi eclpco.

Hnc lct cllgre sole crcā axe
suū rotari ab oriente ad ocdem d.
27 jxā alqos, jxā alios 25d. 6h,
ita ut axis illi, ē axi eclpco,

faciat angulum 7°, adeoque inde traheret illas maculas in hac rotatione, ita ut nobis appareant d. 13 ½ aut 12 vel 14½, & totidem occultentur.

Ds. Post illo maculo esse nebulo à sole distantes: ? ejus speciei non adhærent.

R. cV. ans. si non essent nebulo à solis circulo distantes non apparerent in solis circulo totidem d. quot occultantur: nam in figura procedendo si distarent vg. quam distat F à sole, non apparerent intrare in circulus solis, nisi in puncto F, & occiderent in Limbo occidentali in puncto G, sicque breviori pro appare:rent in circulo solis, quam occultarentur, quod experientia repugnat.

Amir plneto ēē ō pst, qià in
ta xguā à Sole dstaâ, revoluoes
sas pfcrent ad mnmu $\overset{h}{z}$, ut prob-
ant asmi, qd m̄ zpat xpriò.

Art: 3ius

De apprenti mu Solis Annuo & Diurno.

Ut hoc ilgantr in hypsi
Coprcao. sit S. Sol, ABCD orbta
tra, sit tra in C, & apprebit sol
in sgno ariete; moeatr tra mu
annuo ad B, & apprebit sol mo-
vri pr taurū & geminos ad Can-
cru; & deincps du tra moetr
ad A & B, sol procedre pr Leoes,

Virgne &c, ad Capricornu, & spao
uni, an. videbr sol peragrasse oa
signa Zodiaci mio in coo, & trra
ser erit in signo ei oppo in qo sole
ee dim.



Cu ā sol una an. pestae ap-
ppreat acdreo versus polu Boreale,
& alia recdreo vrsus australe, tnc

patet axis terrae non esse pp̄rle, ad

plnum eclpcae, sed esse ita inclnam

ad istud planum, ut efciat cum eo anglum

66°: 31'; ad eoq planum aequis terrestris

non coincidit cum plno eclpcae, sed ab

his 2 plnis anglus efcr 23°: 29';

et quando vdr sol pervenisse ad coe-

sctioem aequis et eclpcae, tunc dr aequi-

noctium.

Qs. Quo pre sol quotannis ingre-

diatur 12 signa zodiaci?

R. ingressum solis in 12 signa

non eadem praecise hora ser. ongre, so-

lere tn fiī circa d. hic notaos.

martii 21	sep. 23
aprilis. 21	Oct. 24
maii. 22	Nov. 23

Jun. 22 Dec. 22

Jul. 23 Jan. 21

Aug. 23 Feb. 19.

Præter hanc annuam revolutionem est alia diurna, qua terra circa axim suum rotatur ab occidente versus orientem motu vertiginis, ut vocant, 23h. 56'. ratione cujus rotationis apparet sol suam diurnam revolutionem perficere ab oriente versus occidentem.

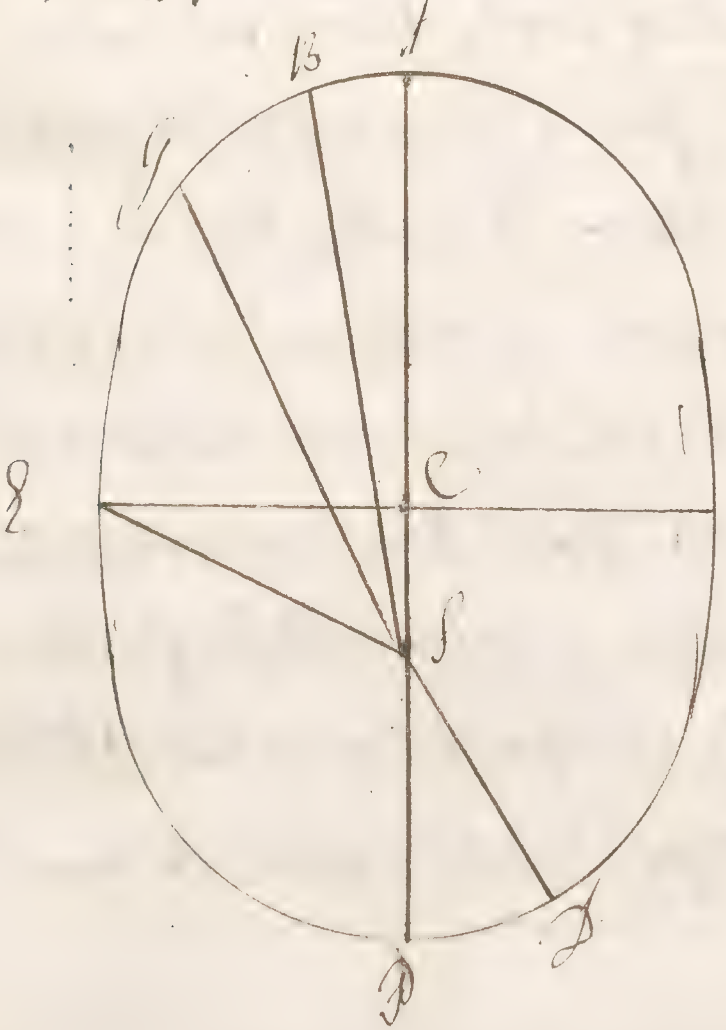
Not: 1º. in motu terræ annuo, quem adstruunt Copernicani ad explicandum motum annuum solarem &c. axim terrestrem esse semper sibiipsi seu perpetuo parallelum, i.e., si in quolibet situ ducatur linea parallela isti axi, eadem in qualibet orbitæ parte

ūrrā eundē annū erit axi fīē pfē
prlla, eandēq fīē coli ptē res-
piciet.

Not: 2º axid trstrē ō eē itā
ser pfē prllu, qn sglis an.
faat anglū crctr 50", c stu in
qo anteā erat: hnc ō ser iisdē
anni pestails ād easdē prōcē
stlas fixas dirgitr. hnc xplatr
processus eqinctiorū, ut spr ā.

Not: 3º solē ō eē crrū orbtā
qā crcā ipsū tra descret, orbis
n elpcus ē, cujs altrū focū sol
pōdet: in qo orbe axis AP dr
lra apsidū, & pnctum A apsis

ſprior seu aphelion, punctum d apsis inferior, seu perihelion. distantia inter Sole in foco et centrum C ... excentricitas. Linea S E e distantia media planetae vel ... a sole aequalis dimidio axis, et tum superat distantiam minimam, quantum superatur a maxima.



Not: 4° mu solis apprente
ce ser æqblem: unde du estas
e apd nos apprct mori tardiùs,
dù hyems vò, vlcis, ità ut in-
smat fre 8 d. ptes in sgnis bo-
realbs qp in austalbs. hnc infs
solē eē remotiore a nbs in estae
qp hyeme; qd m cllgtr ex obsvaoe
ejs diam. qo hyeme apprct sb
anglo 32′ 33″, sd pre estvo sb
anglo 31′ 29″. unde cllgunt dstaa
solis in apogeo ee ad dstaa in
perigæo ut 1953 ad 1889, adroq
hoc ecctrcae ẽnere 1661 tles ptes,
qles dstaa mdià ẽnet 100000.

Not: 5º Dus qd insmr v: g: inr
ingressu solis in æqinctiu vrniu &
regressu ejs ad idē pnctu di an-
:nu tropcu, ci coitr asgnant crctr
365 d. 5 h. 48' 57'', qd pus brevi,
ē anno sydereo; cr n̄ æqinctia re-
:labndo sglis an. crctr 50'' occurrant
soli, hnc an. sydere, maj. erit an.
tropco.

Qs. cr solis ardor mjr sit
apd nos in æstae qp hyeme?

R. Qia mjrē vi hent radii so-
:lis cr drcti qp d oblqi sint; jm
vò in hyeme oblqē in tra ca-
:dunt, & trnseundo p longidaēy
traemtē debilentr p refraioē &

ostia mdü. hnc oritr tnta dra
inr sole qndò in hzte ē, & qndò
vsù mrdiam accedit; ns tutò nudis
oclis pt aspci in hzte, mnmè tn
ſpra eu algm elvatr.

Pōa: qò diutius cus soldu x-
ponr igni, eò mjr evadit ardor;
ſed in ostae nstra hemsphriu di-
utis xpnr rad. solarbs, qp in hyee.

Ds. c hâc rspoe sqrer mxm
ſro caloe, dū sol ē in tropco, ē
n tunc mxè ppvlis nobs: ai mx
calor ē pstqp recessit à tropco: r.

R. cN. maj. rao ē qiā qvs rad.
mxè vrtcles sint in tropcis, tn
tra fr ncte ō amittit totu ca-

:lore, qd pr diē recepit: sc v: g: ſpnams ēa recipre qſtdiē 100 prlas elſcientes, & nctu tm amitre 50, patet qſtdiē augndū fro calre, undè pst regressū à tropco p=:sevrat calr augri, dnc nctu tndē tot prclē amittantr, qt die re=:cipiunr.

Sectio 6ª

Theoria Lunæ

Art: 1us

De Lunæ ere.

Luna sct & trra hoc ē cus ſphcū & opacū, lumenqz suū à sole mutuatr, i qd ejs incrm=:nta decremntaqz dmstrant, ut

de eclipsibus taceam. constat tm̄ ee
eius loue, & politū instar speculi,
viz: n̄ sb oclo cadret & lumen
tm̄ modò paucis ex locis reflecteret so=
lis irmgres refrens. e ā eius aspru
y inoqle, itá ut ptes alie eminentio=
res sint, alie vò depresses; qd ex
tubis n̄ opticis eo apparet: hac
fit ut luna qoqovrsu lumen
suū reflectat adeò ut ptes qoqp
in orbē radient.

Vt v. sct Luna telluris globū,
itá vicissī tell, lunā collustrat;
ngo n̄ alindé lux ea debilior,
qā tot, orbis lunæ senescentis

& propemodũ nvã apparitr, qp à trrã proficiscetr; undè sqs ĕ lunã cuĩ nva ē, trra spectret, totũ ltl:
:bris hemsphæriũ à sole cllstratũ videret: Lunã crescente, trrà vetò senesceret, ità ut in plenilunio tra nva appareret; easdẽ n̄ subeunt fcies tra & luna, & invcẽ cllstrent.

Qd in Lunâ sint montes
(17) altsmi hoc argo dmstratr. si in Lnà ĕ cent ptes aliis lngè altiores, ps qs illmnaa separ:
:aetr à pte obscrâ p lcã rctã: sd tubi optci osdunt lcã trant: lucẽ & tenebras in ore lunari

o eulre, sd qsi dentaam. imo in
pte obscrá propè ĩfma lucido
spcici ĩspciuntr alqe ples il-
lmnae, qo tn o ĩgntr lucide s-
prcici, sd crscente Lná, vario fu-
ra mutale, ipsoqs tndẽst toto in-
ra' ple illstraa: jm vo hoc fi
o pet ni eent montiu smaes,
qas radii sglres citi, attingrent
qm alias ptes deprsisres. —
montiu alnes x obsrvacib, as-
moru inoniunt Geora. Ricciol
assrit se smao montis s. Cathri-
no obsvasse die 4o pst novlniu
istante a pte illstraá crcitr 1/8
mdiamri Lno: qá obsvace psita,
aldo montis hj geoice inontr ec.

9 mil. Heveli, qdm ngat in Lnâ ee montes ta allos, asre Altsmu õ xcedre $\frac{3}{4}$ mil. Ger:manci, i.e., pene 3 $\frac{1}{3}$ mil. angl. e montes in Lnâ õ tm alti st, s in mgnu m spau xcrrunt: Ixa Hevelu Jaun, Lnaris xdi ad 170 mil. Ger.

Protr hos montes in Lnâ de:tegnr m in sprcre ej illstraâ mclo qedâ obscre seu cvaes, qo olqe solis radios recpiunt. vi qo erecti, in eas cadunt solis ra eo mgis. obscras mnuitr, ineem o mns qo montiu cacmna clls:trantr.

o desunt qi obscras illa cav-

pas in Lnâ mria ēē vlunt; at
probli, ē ēē vlles, puteosqꝫ in-
gntes, & vcuos prortū ō umbro-
inrá ipsos cadant, in ipsis n̄
ivinis qasdā ptes aliis lucidiores
detegit telscpiū.

Zonā sit ceis lnaris fura qo-
aunt Newt. spnentes ejꝰ maā in
nitio fluidā fuisse. & qdm pstā
attraoe, si sla spoteti Lna qies-
cns, sphea foret: ō vō vs attoa
tre fluidū in Lnâ ād 90 p. el-
vet, sed Lnæ attrao mre ād 12
pd. elvat; hnc clgunt Lnæ furā
ē sphoidcā, cꝫ diamr lngior p
tre cntrū trnsiret, breviorēmqꝫ su-
prat 180 p.: sd hoc tntillū ē, ut

pò globo heri pit.

Si mdiocris diamr apprns Lne staluatr crctr 32', 12", erit diamr Lnaris crctr 2244 mil. undè ejq species & soldas fclè dedenr ex iis qe dcta st in Epit: math.

an atma pria Lna heat, o satis jstat. ngant alqi ea procellis, neblisqs turbri: alii vò prcllas in Lne atmâ de-txisse se putant: qdqid sit st dendu vdr ea, sqa sit, ee adm tenue & peqnr serena, radiosq lucis qo mnmiu refrngre. In ipso m Lne cre mtaces fi m :pr obsvrunt asmi, mons n

nv, ꝓ ingnte Lno mtu in Pla-
tone ē xoit.

Art: 2us

De mu Phasibusq lunaribs.

1a. Lna sglis mensbs periodcis crcā priu axi revolvitr, & hnc eadē illi, fcrès trē ser ob-vrtitr: si n̄ ej, diamr cet ser sibi prlla, nc fret ut in divrsis orbitē lnaris ptbs divsā Lnē ptē vdrems. hic a ā mu librao-is abstrhms.

2o. Lna ab occu in ortu crctr 13°, 10', 34" qolbt die progrditr, ita' ut crsu suo spao crctr 27 d. 7 h, 43', 7" jxā Flamsteediū absolvat.

Hic mensis periodc, appellatr,
qia vz Lna ab occu ad ortu
mta ab unâ dtraâ cœli pte ad
eande, svè ab unâ sttâ fxâ ad
eâ ipsâ, pacto cœli crcutu re-
vrtibr. →

Ad si. Lna ōparetr ē sole, ē
tra ō in eode lco remneat, so
sglis d. unu pene ° ōficiat in
Coâ, pls pris ab unâ ijoe ad
altrâ insmit, qß iit ab uno de-
trao Zodiaci pcto ad ide redea
ē n̄ ut dxms tra 26°, aut crede
in ortu spao mensis periodci
progressa fuerit, dbet Lna 2d.
d amplı, mensi periodco adjcre
ut implcatr spau qd incedat

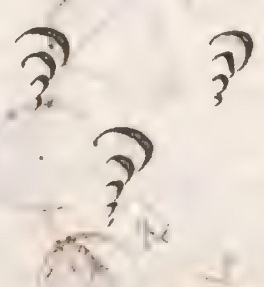
ab unâ ꝯjoe ad aliã, & assqatr
solē: undè mensis ille <u>synodc</u>,
dr, & ꝯstat 29 d., 12 h. & alqt; sd
vlgò negligr, ac menses lnres
synodci altrnaī 29 & 30 d. ꝯstant.
hoc ē vlgata & cvlis prandi ꝯscido.

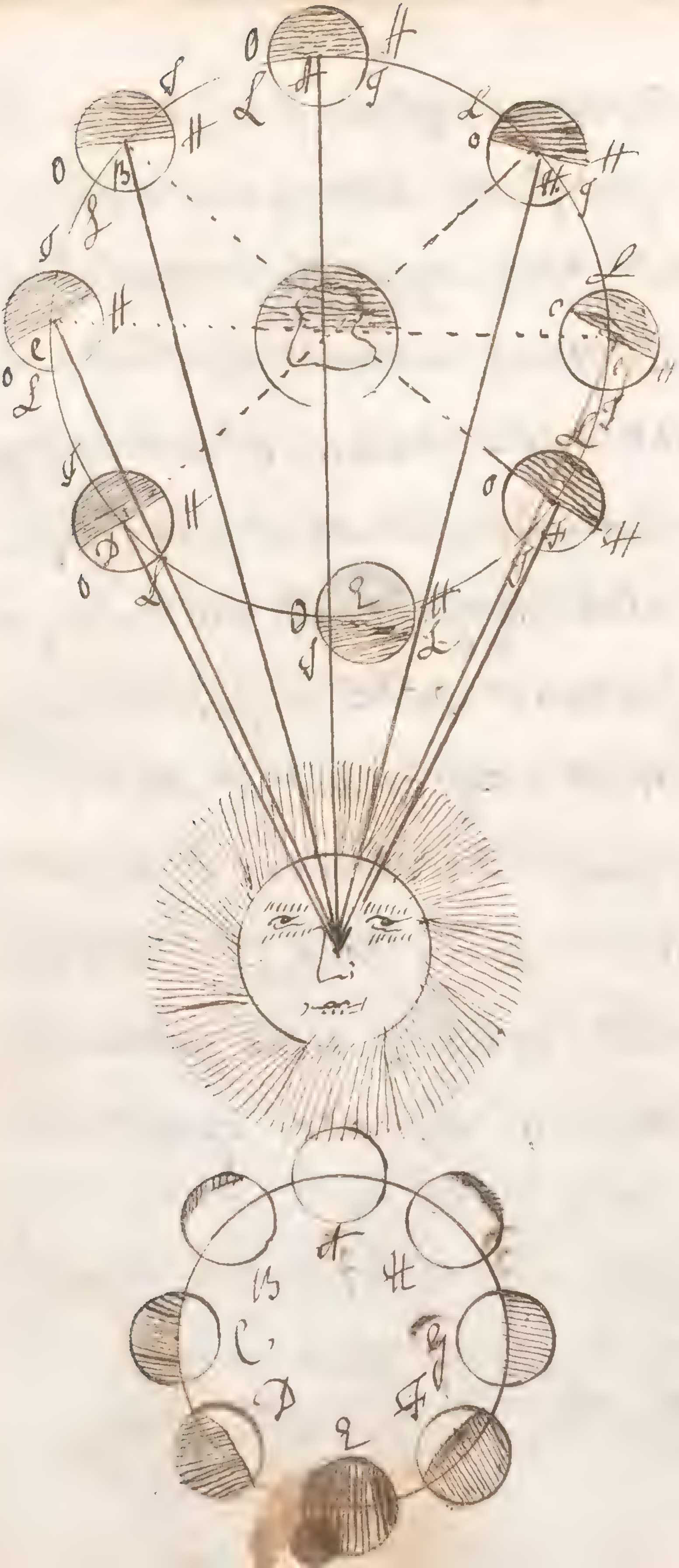
3°. Phases lnæ st vriæ ilæ
apprioes, qas in lnâ obsvams,
jxa dvsiū ejs sitū ru solis &
træ. Sit S. in figurâ 5ª Sol, ABCD
&c. Lna in orbe so crcà tra gy-
rans: lêæ S.A, S.B &c. jngunt
cntra solis & lnæ; lræ K Θ his p-
pples pte cllstra ab obscrâ se-
parant. arcus vò Icr pples ad
lras IA, IB &c. pte hemisphrii
~~[illegible]~~ lunaris vsblis a-

:visa à nbs sprant ab eâ pte ejsd
hemsphrio qo nbs obvrtitr: undè
hic crcl, di pt crcl, viois.

Did Lna ɛxit in poe A, i ē, in
oppoe ☉ sole, crcl, viois & crcl,
trs luce & tenebras coinci-
:dunt, & ingra luns fcies elstraa
nbs ē vsblis, drqp Lna in Plen-
-lnio, & totâ ncte fulgct, ut in
A fura 2a; ☉ vò ad B pvnrit,
tota ps illstraa tro ō apprct, in
:duitqp foa gibbsa. ☉ in C ɛxit,
2 crcli se invicē secant ad angls
pnè rctos, tmqp dmiū plis illstraa
à nbs aivrtitr, dicqp Lna Dicotoma,
seu dmiaa: in hoc situ sol & Lna
dstant ab invicē 4a pte crcli, und

Luna dr ēē in quadrā; ☉ xit in D
mxa ps feiei illmnsa à nbs a=
vidéb, & Luna appret cornuta: ☉
ad E pvenit, seu ad ӧjoē ☉ sole,
tota ab oclis nstris sbtrahitr, drqȝ
novi-Luniū. Cū ad F pvenit, Cor=
nuta itrū appret, sd cornua quæ
ante mtaoē ocdē rspciebant,
jm oriē respciunt; ☉ xit in G
erit rursꝰ Dicotoma: ☉ in H
gibbsa: ☉ in A totā fere nbs sp=
lendescit; variasqȝ has phases
Luni, mensis Synodci spaciū in=
duet.




A
B
C
D
E
F
G
H

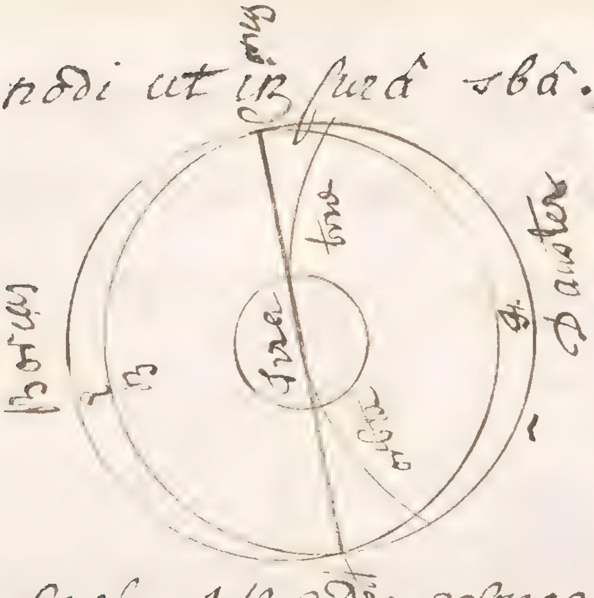
arcus seu angl. cpreħs, inr leas,
dclas a centro solis et lnæ ad centrū
tꝛæ v: g: arcus E L vl angl. S T C dr
elngao lnæ a sole.

Art: 3ius

De orbitâ lnari, mtûsq eis irrltrae.

Lna ab occu in ortū fertr sb zodiaco, ō tn sb eclpcâ; sct ñ eclpca sb qâ sol moetr apprentr obqè secat aeqrē ita crel, sb qo moetr lna obqè secat eclpcā ād anglū 5° circtr; qo inclnao jxa Cassinū vriat, ita ut mnma sit 5° 1', mxa vò 5° 17'. lna diū zodiacū peragrat, ie, sglis mensbs bis eclpcā tnsit. Pcta qbs orbita lnaris eclpcā secat vlgò

dr nodi ut in figura sbā. →



Circl, A B C D est ecliptica: A E C F or:bita lunae: nd, C ascendens dr & capt Draconis, qia luna ab eo pcto eclipticae ascendit vers, signa borealia: nd, D descendens dr & cauda Draconis, qia luna ab eo descendit vers, signa australia: & hi similes vr & jxa Arabas Venter Draconis. Sea C D ducta p eos intersec:tione orbitae lunaris & eclipticae dr linea no:dorum.

x his sqr 1° Luna e in nodi,

xit, nlo here ladne, qos delnaod he-
:at, ni fitē nodi in   oqinctialb
fuerint. - 2°. Maxa sno ladne in
limitbs ee. : - si imblis eet lra no-
dou ser mneret sibi ipsi prlla, at
ijstal ej, sita, mutari ab ortu in oc-
de ja ordne sgnoru, ramqp mu retro-
grdo ita crcuitu sn pfcere ut spao
fre - ad ide pctu eclpco rdeat.
c alqao mjr, alqao mnr sit apprens
sno diamr, hnc rcte clgr dstaa ej, a
tra viari, ddroqp ea orbe eclpcu
escre, c, altr fc, e ser tro cnru, acip
mjr e lra apsidio. hoc lra si eet im-
blis eade fret ser sno dstaa in iisde

ptbs coli: at obsvatr mu anglri
tra eremire ab occu vus; ortu
& ad eundē situ ō prius rdire qn
9 circtr anni efluxerint. —

Varias m in mu so lna expe-
:ritr vibraes. 1° n ē tra in aphe-
:lio e, lna celri; mvetr, & vice vrs-
tedi, c in Perihlio: hnc menses
periodci eqles c st, citi, n lna re-
:luoe sa pfcit dū tra e in aphlio

2° Dū lna ē in Sizigiis, i e, in
lcā qe circa solis & tre ējngit, qd
ē in oppoe, tu ējoe pl coniie. c
parbs celri; mvetr circā tra, in
4uris vō tedi. —

3° à ȯjoe ad 1am 4uram clras ejs,
minuitr, à 4urâ ad oppoe augetr;
ab oppoe ad altram 4uram rurs; min-
uitr, à 4urâ ad ȯjoe de novo augetr.
hanc inæqualitatem Tycho 1us obsvavit,
& eam variationem nuncupavit. —
4° Dum luna e in perigeo, celri,
dum in apogeo tardi, movetr ut areas
ellipticas pribs proportionales describat.
5° ipsa orbita lunaris ser ō re-
[illegible] figura, qandoqe major, qandoqe
minor ē ejs excentricitas. maxa e ꝺ lna
apsidum ꝺ sizigiis coincidit, minima
ꝺ invicem secant ad angulos rectos.
[illegible] inter maxam & minimam tanta ē ut
[illegible] minimam excedat. —

6° Lunae apogeum habet motum inaequalem, quandoque progreditur, quandoque regreditur, quando cum linea Syzygiorum coincidit, tum progreditur; at cum eam secat ad angulos rectos, tum retrograditur. Inaequales sunt ejus progressus, et regressus, ut qui progressum apogei in Syzygiis aestimant 23′, qui est in stellarum fixarum regressu, vero in quadris quod est 16′ et 3′′, ideoque annuum motum medium apogei aestimant esse 40°. Flamstedius vero assignat diurno progressui in Syzygiis 21′ 28′′, regressui vero in quadris 15′ 12′′.

7° Nodorum motus non est uniformis, cum enim linea nodorum cum linea Syzygiorum coincidit, quiescit motus, cum vero ea linea

secant ad angulos rectos, celeriter retro-
gredi{tur} ab ortu ad occid. motus eorum
medi, quatenus æstimatur à Cassino 3' 10'' 30'''.

Solus luna motus æqualis e ille per quem
eodem præcise fere circa axem suum vertitur,
quo orbitam suam percipit. at hic in motus
sit sine quadam inæqualitate: apparet
in luna quædam ab ortu versus occid,
quædam ab occid versus ortum librari, un-
de plures quædam aliquando apparent, quæ e-
rant prius invisibiles; dicitur hic motus libra-
tionis

Sectio 7ma

De Eclipsibus.

Art: 1us

Quid sit Eclipsis?

Eclipsis solis est interpositio lunæ inter

sole & trã, & proin in Eclipsibus Solis

~~... trae~~ ō sol sed tra privatur luce.

Hinc sequr Eclipses solis in noviluniis,

h.e, in ōjoe solis & lunae tm poem

ōgre: & illa Eclipsis solis quae in

xti paoe accidit, ōã rōe naturali,

esus n pss, e sb plus plen-lunii

die 15 mensis s', postridie eius qua Pas:

:cha ē discipulis celebrasset, qd ex legis

praescripto Lev. 23. v 5. die 14 mensis

ejsdm erat celebrandum. — Eclipsis

lunae e interpoōo trae inter solem & lunam.

Nota: ōē cius opaci oppositum

radiis solaribus umbram post se projicit

& qdm quo a cra opacum & lum:

:pso, sit paris dimensionis, tum umbra

ē conica, cujus vertex qui abscendit, & cujus basis sô latior ē quo longi, ecedit quod si eius dimensio sit majus, opacum umbram concam post se projicit in illo desinentem. Tum vô sol lunâ tantâ major est: et illé umbrâ concam in illo desinente projiciunt. Quod si aut hoc in illum, aut illa in hunc, umbra ingressa fuerit, statim fit eclipses.

1° debet eclipsis nullo pacto ce solis aut lunæ eclipsis nisi luna præ conjois vel oppois sub eclipticâ aut propè eam sit, i.e., nisi sol & luna aut in nodis sint tre no-lunii aut plen-lunii aut verè propè illos.

2° oes lunæ eclipses universales ee, i.e.,

ab alis hoibs ōspici poe sp^rā. quod
hzte Lna tud emnet, nld vō & eclpse
poe ec urte, i.e. solē nnqp ītā ec-
:lpsi pati, ut ab alis odeatr ec-
:lpsis sp^rā quod hzte sol tud
emnet. Luo prois ptis ē qiā
Lna vē privatr luce qp a solē
mutuatr. Rao pstrois ē qiā c
Lna sit sole & trā mnr, nc ē ut
alis tu ptbs lotud solē, alis nē
tegat, alis ptē m pptr diā pr-
:lxeos lnaris, sct nubes, qo nls
solē eripiunt iis qi ulbi hitant,
qps nubes easdē ernant, solē o
tegant.

3o Eclipses Lnē alis qlis st ōsp

sul accidere, (quos eandem horam diei
naalis oes. ment9. eclipses vo solis
citi, illis immigrare qi solem hent
vss; ortum, illis tardi; qi eundem vs;
occiu hent; rao h, ē plexis, Luna.
Diamtr Lune atq m solis in ptes
12 eqles, q̄ digti vr, ab astmis
dvi slet, sgliq digi in ptes 60mas.
itaq Lune eclipsis ptialis ē qn pau-
cres digi qm 12 obscrantr, totalis
qn 12 aut plres obscrantr; fi m pt
ut umbra plres ineat dgos qm Lune
diamtr. eclipsis totlis cū morā cē dr,
qn tota Lna aut sol tot, pd alqo
me eclipsin patitr, sc unco insti cus
toto solis aut Lune obscretr, dr ee

Eclipsis totalis sine morâ.

Eclipses solis partiales aliæ corni:culares sunt, in quibus pars solis apparet instar lunæ in cornua flexæ; aliæ annulares cum limbo lucido de sole annuli, vel corona circa lunam mar:gines conspectæ, ipsoque tum accidit, cum um:bra lunæ in mucrone ante decidit, quam ad terram perveniat. Eclipses totales morâ nunquam insignem habent; cum to:talis cum morâ nulla est centralis, quod fit cum luna nullam habet latitudinem, sed circa si:nis nodum tenet.

Principium eclipsis solaris ex parte solis occidentali fit, eademque in parte sol restituitur; q
tum luna ab occasu in ortum velocius movet

qp. sol, ocle solis pte so subit, eande
po desrit. pprium Eclypsis lnaris fit e
pte lnæ oriali, illiq pti so lmen restuit;
n lnæ ps oriālis ocle pte antcedit.

In Eclypsi solis ptiali si lado
lnæ borealis sit, ps solis borealis
dficiat, ausralis vo si lado ausrlis sit.

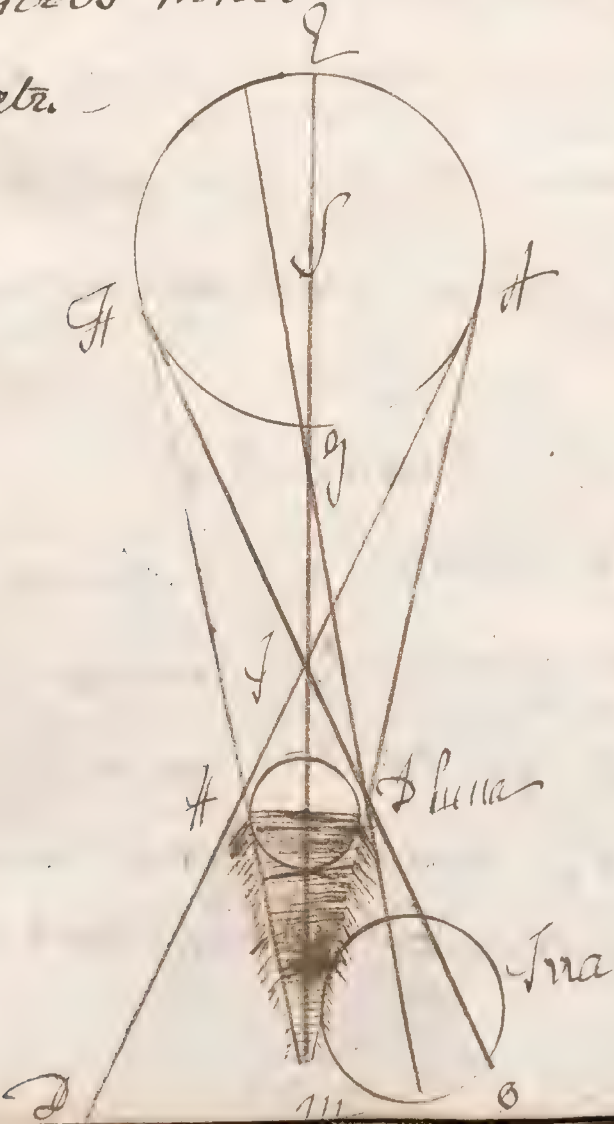
In Eclypsi lnæ ptiali si lado
lnæ brealis sit, ps lnæ auselis dlit;
borealis vo si lado lnæ sit ausrlis.

Ar: 2us

De Penumbrâ.

Protr umbram à cre opaco pro-
jam, e in spaio alqd paucis rdiis
illmnam qd dr Penumbra. →
sit A E F G crus solis; K e d lnæ. &
~~solis~~ tra S C ōjngens crum lnæ & solis.

Ducatr lea F D O mgns instrū so:
lis limbū & dxtrū lnæ. Item & lea
a H D eā secet in I. spaū O D m
& D H m erit Penumbra, qo eō mgs
aut mns erit obscra, qo vcnior
fuerit I. m D qiā in lcis umbræ
vcnrbs mnri disci solis pte illm:
:natr.



Si umbra ad terram pervenerit in S.
v: g: incolis istius regionis erit eclipsis
solis iis vero qui extra hanc regionem de-
gunt, sed tamen sub penumbra v: g: in
erit eclipsis partialis; portio in
illa disci solaris quæ absconditur
a luna est ipsius visibilis. Porro
omnium angulus coni penumbralis æ-
qualis est semidiametro solis apparenti.
—— altitudo umbræ terrestris ut com-
putant Geometræ est circiter 2148 semidi.
terræ autem cum sol in distantia media
versatur plusquam 217 semidi. Tum vero cum
diameter terræ sit ad diametrum lunæ fere
ut 100 ad 28, altitudo umbræ terrestris
erit ad altitudinem umbræ lunaris in

ſãde pportioe, qpã umbre conicæ ſt
ſuræ ſlæris: ⁊ alĩo umbre lnaris
erit certi 60 semid.: ⁊ si lnæ d
taa sit mxa, umbra ejs, qd tra
ptngre ō pt, qo cu cntralis ec-
clipsis solis ſi pt, ō tn tottis, n
crca lne discũ apprebit cerclus
lumnsꝰ: hnc m dũ anamoliã
lnæ, i e, dstaa ejs lci mdii ab apo
geo ē mns 3 sgnis, aut mjus 9,
eclipsis totalis ēē ō pt, qpã in
crbs illis anamoliæ gradbs dstã
ā mjr ē qp mdia.

Si lãdo lnæ sit mjr qp ſmã

semidiametrorum lunae & umbrae illa proportio
lunae umbram tanget; si aequalis, tan-
get tantum limbum: si minor, erit eclipsis,
partialis quidem si latitudo sit major quam dictorum
semidiametrorum, totalis vero, si minor.
Quod si luna in ecliptica pro pleni-
lunii distet a nodis plus quam 12° 34' lu-
nae eclipsis non erit, aut si pro novilunii
sol distet plus quam 17° a nodis solis, eclipsis non erit.
hinc absolute eclipses solares frequentiores
sunt, quam lunares, quas in loco quovis pro-
pri, pauciores.

Porro semidiameter umbrae lunaris, si
e luna conspecta, apparet aequalis
dictorum semidiametrorum, solis & lunae e

tuta ꝯspectarum; semidiametri vero

oglis e semidiametrorum

Sec. 8va

Theoria Telqorum Planetarum.

Ar: 1us

Saturnus.

Circa solem ab occu periodum suam absolvit d. 10759 & solis 36 min. 20". unde colles eam circ 2' prima qtdie emetire. ꝯ a sol mu medio vdrar qtdie percurrere arcum eclipco 59 min. 8", hinc ap-prebit psl ꝯjoem sat. recedre ab ipso qtdie, 57', 8", adeoq

ō redbit nva ōjo solis & sat: ni
pst d. 378.

Collit Cassn, ex Jovis qbsda
in ore sat: ipsum crcā axē suū
rotri, qd an sit vid ncne ō ō stat.
c. qos sat: sub Zodco revluoē
sū fsciat, plna tn ejs orbtæ ō
coincēdit ō plno Eclpco, sd illd se-
cat in 2 pnctis seu nodj nqs pln-
eta ē unqo proce in Eclpcō, ni
sit in nodis, eōqs lngi, remvetr
ab Eclpcā, qō lngi, ā nodis;
undē lintes seu maxa heliocnra
lādo. Satrni ē in aqli dstaā ab
utroos nodo & dsmatr 2°, 30'

qo ē mensra inclnacis orblo Sat:
ad Eclpca. — Telescopiū ostdit Sat.
annlo lucido tnui qdm sd tn lato
cnctū, cujs lado oqlis ē ejs dsto
à cre plncto. Annl, hic varias
induit fcies pro rnoe situs Sat:
in so orbe, & sglis 14 aut 15
an. eandē recuprat apprciā.
jxà hugeniū p 6 mens. ante
& pstqm Sat: fuerit in $\overset{o}{}\overset{mo}{20}$ virgnis
& pisciū, annlu, ō apprct: at vò
à grau 20mo gemnorū & sagtrii
apprct anl, apprlr: pstea minui
gradaī, dnc evnscat, ibinq3

prodire incipiat. — Quid sit hic

anl. ō ōstat: sl qi eu satlitem

dctioe ēē putant, qbs tn assiri

dfle ē, qua nla unqp invola sd fr=

fa ser ōtguas in eo detg: unde

pti, credrim ēē arcū mao crudo

soldo ad lucē reflctida idoneo.

Prer hnc anlu Sat. 5 m satll=

tes seu lnulas comites hel, qi eca

orcā lra

ipsū obr, sctlra ^ 1us 2us 3us & 5us à

Casino vs^ie st in obsvaonio re=

gio parisinsi, 4us satles ab

Hugnio 1o obsvaus meto ē il=

lustrioi reliqis. —— >

Hi oes satles radiis ad sat:
ductis areas dscrunt pribs pro:
:tiales, sct. relqi plneta radii
circa sole.

Satellitum Sat: pra periodca.

	D.	H.	'	"
1i	1	21	18	27
2	2	17	41	22
3	4	12	25	12
4	15	22	41	14
5	79	7	48	0

Dsta Satel. à Cntro Sat. in Semdia:
:mris annuli

1o x obsvaoibs.			2o x pribs perico.		
1i.	1	$\frac{19}{20}$	1i	1	93.
2i.	2	$\frac{1}{2}$	2i	2	77.
3i.	3	0	3i	3	45
4i	8	0	4i	8	0
5i.	27	0	5i	23	55

Porrò sat: diamr ē ad diamrū
anli, ut 3 ad 7: diamr anli in
mdiocri Sat: ad trō dstaā est
42" & diamr sat: 18", qd si rejci=
atr oriꝰ dilataā, qā orivi est ex
rivuli i frngibilitae vix erit 15". –
New. & Flamsteed, cīd prunt tm
9 aut 10 aut 11". –

Art: 2ūs

Jupiter

post sat: illustre sīd, amplio–
risqꝫ ħ.ℓ, qꝫ. m̄ stlo bxo 1º mgdis,
propue ō in oppo:e solis eelztre
ā trō vcnr ē ē ingrad orbita

solē, qd ēgit m in oibs ptretis

sprolbi. Iup: rev. luoē sā creā vol.

pfcit an. 12 aut d. cretr 4380, in

orbtâ cujs plnū iiclnatr ād pln

:ū eclpco pt anglū 1° 20'. sphra

diamr ejs apprens ē venr rbs ē,

ēnct cretr 64", qo pre dstaa ejs

ē ad mdiā dstaā solis ut 26 a

5: in dstaâ mdiâ diamr ē 3'

1'''. qi Jovē telscpio accrae ob:

:vant, testantr eū oi ex pte rotndū

ē ce; iqo fi oportet qiā creā

axē rotri obsvatr; jxa c Newt.

diamr ejs eqaoriā ē ad polrē,

ut 40 & 3'''' ad 39 2''''. telescopiū
m̄ prior: melas ostdit Jovē fasciis
qbsdā cnctū, qarū ō e. ō stan-
rius, alqao una cerntr, alqao
plres: unde m̄ colgr ipsū crca
axē suū revolvi, i qq spao 9 h.,
56', j.x.a Casinū: fascia n̄ illo
pris spao crcuitū suū pficiunt.

Gallilæ, an. 1610 x telescopio
precepit 4 Jovis satles, qi illū
tnqq lunle ità crcmount, ut cū
jove sprores sint, vrsq orntē
movanr, infrores vrō vrsq occid
ferri videanr. harū lunlarū nla

nostrâ illius minore mole esse extimat

Hugenius. earum orbes quos describunt sub

à centris jovis centris: et eorum periodica

periodica & distantiae ut in tab. sequenti;

Sat. Jovis periodica period.

	D	H	'	''
1ᵘˢ	1	18	27	34
2ᵘˢ	3	13	13	42
3ᵘˢ	7	3	4	36
4ᵘˢ	16	16	32	9.

Dist. Satel. à centro Jovis in Semi-diametris Jovis.

	1ᵘˢ	2ᵘˢ	3ᵘˢ	4ᵘˢ
x observat. Borelli.	5 $\frac{2}{3}$	8 $\frac{2}{3}$	14	24 $\frac{2}{3}$
Townlei per microscop.	5.52	8.78	13.47	24.72
Cassini per telescop.	5	8	13	24
ejusdem Eeclip. Satel.	5 $\frac{2}{3}$	9	14 $\frac{23}{60}$	25. 3
x periodis periodici	5.667	9.017	14.384	25.29

Sattes hi eadē facies subeunt
cu jovis quas luna erga trā; & ē
jovē sprores st bis eclipsē pati-
untr, sel pst jovis orus ē st in
leā qe ōjit cerra trē & jovis, utrūq;
ē umbrā jovis subeunt, i.e., ē st
in leā, qe jngit cerra jovis & solis,
qd acdit in eorū plenilunio. qao
a apprent trōri visē occultū oc-
cltrr discū jovis sbeundo, qo frē
ab ejs ore brē disgi ō pt; at
vō ē st in ājōē jovē inr &
solē umbrē ipsorū in disco
jovis eclipsē efficiunt. —

nota tn 4ta saltem: ni propè nod-
-os sit vix eclpsid. pati; hoe eclp-
-ses tngno st utlais ad geogr-
-phcas lcord lndes dtrandas,
qpa st & freqntres & ab oibs ọ-
-spentr. Ar. 3.

Mars

Jove & sat. infror revluoe
sd crca sold pficit 686 d. 23^h
27', 36" in orbtâ qo anglud fait
d eclpcā 1° 52'. ex obsvaoibs
maclarid in sprcie hujs plncto
clgr ejs rotao crca axed sid 24^h
40'. atmad m illi ȯvrre hnc in-

funt; qd stlæ fxæ propè ejs crus
appreant obscræ.

Mars ☉ in oppoe solis ǽit
c 5 $\frac{es}{}$ nbs verz, qp ☉ in ǽjoe
vrsatz, adeò qp ☉ visblis discus
lumenqz. plnitæ augeatr in raoe
scaã dstaæ imminutæ, appreбit
25 $\frac{es}{}$ amplz & lucidioz in oppoe qp
in ǽjoe. diamz ejs apprens in
oppoe, ē crctr 32", in ǽjoe ō ni
9". prrò ☉ ejs orbta propè trasit,
portiō plnctæ qæ soli obvrtr ō serz
trā snmr obvrtetr, id ☉ ē crcà 4ta
uras, ps qæd a disci illmnai

a trâ avrtctr, & maris gibbos, ap-
-prebit.

Hzleri hujs plnete prlci in
oppoe ēe crctr 24 aut 25" obsr-
-varunt Flmsteed, & Casinus.

Art: 3ᵘˢ Venus

Revluoē sā circa solē pficit
224 d. 16 h. in orbitâ, cujs plnū
inclnatr ad plnū eclipcæ p angl
3° 24". Eādē rotaoē sā circa
axē pficit 24 d. 23 h. crctr. nunq
a sole longiꝰ recēdit qȝ 48° & ca-
xit in eādē pte orbite sue in qâ
vdretr a sole in oppoe ā terrâ,

tu dr ee in ōjoe sprori; & eò in
eâ pte ē in qâ vdrer in ōjoe
& trâ, tu dr ee in ōjoe infrori
à ōjoe sprori usq ad infrore
ser apprt a pte solis oriali, &
vespre lucet, drq hesper, seu
Vesper, at à ōjoe infrori ap-
pret à pte solis ocdli, & manè
lucet, drq lucifer seu Phosphor.
Dstaa hujs plncte à trâ in
ōjoe sprori ē ad dstaa ejs in
ōjoe infrori frè ut 1. ad 6, &
tu apprt nbs mxa luce dif-
fndre, jxa Halleiu, & elongatr

a sole crctr.   in qo situ ser.
plno die lucet. Jove ipso illstrior
ē, imò lux ejs magis vvda ē qp lnd
ipsis, qvs, jxa eundē asmu, tnc
tm 4ª pte disci lumnosi vdeams
ē qvs nudis oclis ser plnâ fere
lucere vdeatr, telescopio tn ōsdit
eā easdē phaces sbire ē lunâ, uti
1u obsvavit Gallilous propè ōjoē
sprorē, plno orbe lucet, in infroi
evnescit, & si in nodis sit, obsva
:bitr trnsire tnqp mcla p disci
solrē, qd phenon an. 1761 evn:
:turd sollcti xpctant asmi. ap:
:pret m in ōjoe sprori ferri

secu ordne sgnorū, seu vrsꝰ o-
ente, in infriori vo retrogrdaōe,
seu fori ja serie sgnorū seu
vrsꝰ ordem.

Venris diamr ꝯ tro mxe vi-
sa ē, anglū sbtndit 85" tumq
dstaa ejs perigea ē ad mdiā
solis dstaā qꝰ pxe ut 21 ad 82,
adeoq si eet in eadē dstaā qā
sol, diamr ejs apparet sb an-
glo 21" 46"': unde clgr ejs diam-
rū ee ad di: solrē ut 21" 46"' ad
30' 30", tlis n ē mdia solis diamr.

An heat hic plneta stlem

nene, ō ḡstett, vsus ē sibi Casin,
an. 1672 & 1686 unū detexisse
dstntē à Venre crcā ⅓ diamri.
Venris. Id de hac re nil ē crti.

Art: 5us.

Mercurius.

Qd de mu & phasbs Venris
dxms, idē di pt de Mrcrio, ni qd
ḡjoes, drctioēs, staoēs & retro-
-grdaoēs frqntrēs sint in Mrcrio
qā in Ven. ob mū Mrcrii vlcio-
-rē & orbtā mnrē, cujs inclnao
ad Eclpcā ē 7°. An ā rotaoem
heat crcā axēm suū, ēdm ḡstat,
proble qdm ē, qā illd appretin

pleriſq plnetis.

Orbita mrcrii scl & relqorum plnetarum ellepca ē, & qdm aliis mgs Eccntrca, Eccntrcas n ē ad mediam Dstam ut 2051 ad 10000. –

Plneta hic ob solis vicnia iaro sne telscopio ōspci pt, ēn ejs elngao mxa tn 30'. an. 1630 eum obsvavit Gassnd, in disco solis qo pro erat ejs diamr ad diamrum soly rectr ut 6'' 40''; vl jxa Hevelii obsvaoes ut 1 ad 290. —

Sectio 9na

De Cometis.

ar. 1us

Qid sint Cometæ, & quo in loco.

Testbs Arle Senecâ & Plutar:
:cho tota phorũ secta italca do:
:cuit Comtas ee plntas errarios,
i e, pst longũ pris invollũ dnũ
apprentes, seu sidra ɔ mundo ɔ:
:ratra. nilomns Arles &, pst eũ
ingra Patcorũ schla, comtas tũ
grari ɔ 1ũ apprent, & evmpi
ɔ evnscunt, pulavre, ɔq ipsi

graoē oē & cruoē ex celis abegis=
sent, hnc, ut oa nao phena co=
gerent sis pletis ǰvire comtas ex
celis ad regioē sblunarē detrax=
erunt, & osqꝫ meteoris annrarunt,
nil ee alid asserentes ni vapres
ō melto pt dissipandos. ǰa qos
phos. prandu e cometas neqꝫ
meros vapres ee, nqꝫ in regiobs
sblnarbs grari. —

& qdm an sint luna infrores
sole ex prlxi invirri perit; lna
n ob venia tre prlxd palitr
tnjrē qꝫ 50: sd comto ō obsvantr

tritã prlxd; r õ st lnã. infriores.
— Pr. Min. ut innras obsvaoes
omittamus, una erit instar om,
Tychobrahe Uranobergii metit,
ē dstad comto vrs; hztem à stlã
vulturis qo in eode erat crclo
vertcli: eode pre Hagesius
Prago in Bohemiâ, 6 qi lcus ē
fre sb eode mediao, sd qad latine
6o ab alio dert inunit oio ean-
-de dstad comto à stlâ vultris;
r tnta erat comto dstaa à trrâ,
ut prlxis ejs evnsceret: r ō erat
lunâ infror. —

Prlxis hoc, de qā jm agms, dr diurna, & ē dra lcorū in qbs cometa ꝯspicietr ᵃ spirē tio & cnro, aut ᵃ 2 lcis, qoiū altri mns, altri mgs ē vrtclis: e tn alia prlxis, qⁱ annuā seu orbis annui tio vocant Copnicai, qo ᵃ mu tio pdet, qtns hic mū cmto afcit. obsvarū ē n comtas oēs qⁱ progrdiuntr scm ordnē sgnorū ee sb ᵃu apprioris, aut retrogrados si tra ē inr ipsos & solē: at justo celeriores si tra ād oppiū pergat. & ōa qⁱ pgunt ōa ordnē sgnorū

st justo celeriores in frie appriois,
si tra versatr intr ipsos & solē,
& justo tardiores seu retrogradi, si
tra sita ē ad ptes ōarias: nā si
mus tre pprius sit in eadē dr-
-ctioe ē mu comtē & eo' vlcior,
cometa ē trā spctans ob mū
suū tardrēm apprebit ēe retrgdē:
sin tra tardius feratr, mus ap-
-parens Comtē ē tardior ejs mu vo,
qā' ps mūs adebtr detrhi pr mū
tre tardorē: ;at si tra in ōarias
ptes pergat, comta justo vlcius
appret mori, qā' ejs mui addtr

mus tra. hoc prlxis afcit lndem
comtæ, seu dstaa ejs in eclypcã á
ppio arietis: & cnew. algens ds-
taa cometarũ ex hac prlxi inoit
eos infra jove ee solere.

Poa comtæ pergunt propemdũ
in crclis mxis, i e, per leas fre
rectas dũ clritr mvetr, & tnde
ꝯ mũs apprentis ꝯps illa qe oritr
ex prlxi mjrem het prortioe ad
totũ mũ apprente dfflctre solnt
à crclis mxis, & dũ tra in una
pte abit, ipsi in ꝯaria pte abire.
dflctio oritr tn ex prlxi, & obsvri

solet ē p Comta incipiunt evnscre, & insgnis ejs quas Nero' ōputo prat comtas evnescntes ēē infrà Jove, undè cons ē qd in perigœ, & perihelii ubi prius adst, des-cant sæpi, infrà orbes martis & inferiorū plentarū. — Cēr m pro-pinquas Comtarū ex luce captūde quā infrā āgemus, & ex prlxi diurnā, qē in qbsdā deprhnsa prat eos alqas ēē infrà orbē martis. —

Qd ā ō sint vapres seu exha-laoes, hnc satis aprtè clgr, quia si Comta nil alid eerit qp vapres,

vl exhalaões trē, solis aut plnta-
rū, ille Cometa, qi an. 1680 appru-
it, in trnstu so p venia solis stū
dsspari dbuisset: e n calor solis
ut radiorū dnsias, hoc ē recpricè
ut qrū dstas lcorū à sole, ideoq
d dstaa. Comts à cntro solis die
8vo 10bris, ubi in perihelio vrsa-
batr eet ad dstaā. trē à cntro solis
ut 6 ad 1000 crctr, calr, solis
apd comtā eo pre erat ad calrē
æstivi solis apd nos, ut 1000000
ad 36, seu fre ut 28000 ad 1;
sd calr aqe ebullientis e qsi

3plo mjr qꝫ calr, qe tra arida
ocepit ad ostvm sole ut expert,
ē New. & calr frri candntis,
ut īde arbitriatr, qsi 3plo aut
4plo mjr qꝫ calr aqe ebullintis;
adeoqꝫ calr qe tra arda apd tn
Comta in perihelio versante x
rad. solrbs ocepre pot, qsi 2000es
mjr erat, qꝫ calr frri cndntis;
tnto a calre vapres & exhalaoes
std dssipari dbuissent. —
Hic dcit idē New. Comtas
ee cra solda, compacta, frxa &
durabilia adinstar crid plnetard

ide ꝯputat globū ferri candentis tr̄o huic æqlem vix frigus recu-peraturū an. 50000 unde ubi co-meta ille 100es crebrius qᵖ ferru[m] cand[e]ns refrigeraretr, tn̄ o ante an. 1000000 calorē suū amittret.

Ar: 2us

De mu, orbitisqᵖ Planetarū

Revoluões Cometarū nlis adhc crtis legbs xplanr ob pro-ꝯcepta Arbis opiōem p̄ meta soda sblmior hoc asmio ꝑs neglcta jace-bat, olim qdm provdrat Seneca al-

:qao ſura ſecla qbs hoc ta eccleta diēs
xtrhret, & lnguis ovi dilgiā. Hall. m̄ volut
ſphoriū comctariū. historiis nil ōiō in:
:venit, qd huic negotio inſerviret an:
:te an. 1337 qo Nicephorus Gregoras,
Constntopolan, comtā semtā satis
accrae descpſerat. pſt ipsū Regi:
:omontan an: 1472 terribilē cometā
:obsvavit. Regio: accepit Tycho qi
comtā an. 1577 ob deffū prlxeos
sibliis diurno, lunā sprore ēē ius
indagavit. Tychonē inseqt, Kepler,
qi ex 2 comtarū obsvaoibs ōlegit
eorū mū a rectlo ō metū ēē di:

visū. Hevelio postea absolvit eorū via visis sole incurvari. tandē an. 1680 insignis Cometa qui cū proxime sole petere & exinde pari velocitate assurgere visus ē, cujus motus apparens per 4 mens. a Cassino & Flamsteedo accuratissime observatus est, materiam suppeditavit orbitas quoque cometarū delineandi.

Ex hac tamen Halleii historia nil certo probat eosdē cometas ad nos denuo redire. interim objicit Halleius, eundē fuisse cometā qui an. 1456 & 1531, 1607, 1682 apparuit, eumque an. 1758 reversurū fidenter predicit.

idē auctr excmat comta qi an. 1680
ad nos descndit, eundē fuisse qi
apparuit an. 1106, & 53 an. pst Xtū
natū, & mense dec. pst cædē Julii
Cæs. intrū qd attinet ad eorū motus
qos obsvarunt asmi, 1°, mus, qi x
diurnā trē rotacē in oa sidra re-
-fundtr, ipsis ē relqis cois ē; mū
tn priū m hent, qo locū suū in
regioibs celstibs tpus mutant, alii
ab occu vrs; ortū, alii ab ortu vrs;
occū, nqe intra zodiacū ōnentr, sd
alii vrs; austrū, alii vrs; Boreū,
variis inclnaoibs deflctuntr; viā
m ē corū vlcas: qi oiū vlcismus

a Regiomontano observatus, qui, in gros 40° quotidie peragravit ab ortu versus occasum.

Hinc infertur nos esse in coelis vertices crisnos, quae non ratione penetrent cometae tanta velocitate directione secundum illis verticebus opposita conservare, quin capi possit. & quamdo tantus sit vertices siderius torrens, ut terram non secum abripiat, multo cometa oppido penitus destrueret.

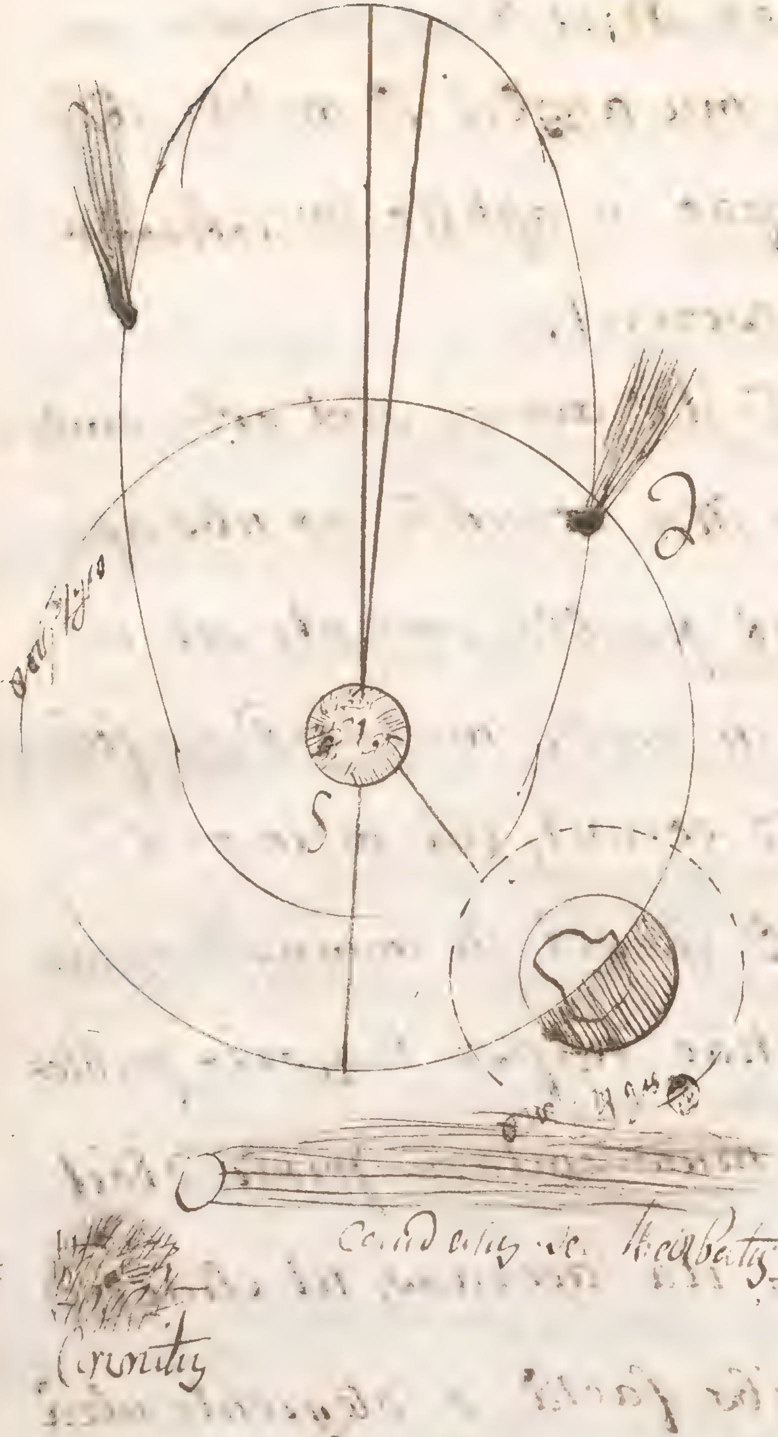
2° Quos multi existimaverunt cometas lineas quasi rectas, seu partes circuli maximi, describere, tamen ex observationibus accuratioribus constat eos lineas curvas describere, & circa solem cursum suum flectere; unde

si ipsi eâdē vi à lēis rctis detor-
-quientr, qā ĩelqā plneta, describt,
radĭis ad solem ductis areas=pribs
proportiales; &, si in orbem redeant, i
qđ ē vldè probbe, erunt orbes eorū
ellipses.

3º. sl orbes hi vldè excntrci, &
in aphelijs sis in immnsa spaa
excrrunt, vlcae immntā, crescnte
dstaâ aphlii, undè si dstaa ap-
-hlii est ad dstaã perihlii ut
1000 ad 1, vlcas anglris, seu qā
areás anglres crcà solē in fco ll-
-ipseos describt, minuerētr in aphlio
in raoe zcaā dstae, & fict ut

1000000 ad 1: & sc, diu cmta in
Pihlio mu anglri 1° metitr, eode
pris spao in aphlio tm $\frac{1}{1000000}$ u-
-ni, o descrerct.

C O ita xcnrci sint orbes cmta-
-rū, ps illa eorunde, qo nbs ap-
-pret, pō parblā smi pt; sct n
Elpsis in crclū mutatr, ō ejs foci
in unū coeunt, ita m in prbla
mtatr ō ejs fci in immnsū sepran-
-tr. in hac hypsi trajorio prblco
tablas muū cmtarū prolo dedit
Halleī, ita accraas, ut cllaoē ō
obsvaoibs factā o dtegrentr ulrā
3 ab obsvaoibs discrepare.


Caudatus vel Barbatus
Crinitus

Art: 3ius
De Luce Cometarum eorumque Figuris.

Varia. st. cmtarũ figuræ & mgnes, alii n. ĩfso capillitio undique succen-ci apparent, & criniti seu comati dnr: alii caudas igneas à se projiciunt, & dnr caudati & barbati: qdam sine capllitio o sperant stlas 1æ mgnis, aut m 2æ & 3æ. refert Sen. sb nerone cmtã apparuisse sole vix infrore mole: smr Hevelius an. 1652 unũ obsvvit lct & obscurum, vx tn lunã mnrẽ. dnsã plurumque & tenbrosã atmã eorũ

cra cnguntr, infra qi. cnita qsi
nucleus appret, lucemq atmâ
vividiom emittit. x dllace fctâ
inr diamrû cmtarû ad diamrû
Plnete, sul e luce cmtarû ad luce
plnete, patet ipsos, e apprent, aut
infrà sal: aut ō lngè sprà ēe d-
-lcandos. - imò hnc ōstat ee meto
nbs vcnres, lux n captis fuscatr
p fumû illû copiosû & crassû qd
adinstar comæ crcmdat, n qnto ob-
-scri, capt p hunc fumû rddtr, tn-
-to soli vcni accdat nēc ē, ut copia
lucis à se reflxæ plnetam æmuletr
Fum, ā cò dnsiōr ē & obscuriò,

qo intnsior ē calr; & hnc cmto
capt in ascu à sole obseri, ē in
eāde dstaā, qz in descu.

Obsrvantr cmtarū capta mgs
splndre, in vchio solis, qz d sint
in vcnio tre, lct in perigeo so sint
meto, nbs vcrres, & amplres ap-
preant, qp in perhelio. obsvante
Hevlio, cmta an. 1665, a qo ō spci
copit remittebat. ser alqid de mio
so, adeoqz perigeū pretiret,
splendor vò captis in dies cresce-
bat, donc cmta rād. solrbs tctus
desiit apprere: idē obsvarunt
alii auctres, undè cllges ō lm

cmtas ēē alqae admodū vicnos soli,
id m̄ eos lumne solis mtuao lucre.

Ds. 1º. Cmtæ, ser pleno orbe luci-
:cent: ↄ splendent lumne proo. ⊃

R. K. ans. a. V. cod. i n̄ fit ob
dstaā à sole, sct Sat: & Jup. jxá
nstraes pleno ser orbe lucent, qd
tntillid ē spard sole inz & tra ↄↄ
mgnæ dstas illorū à sole, ut iān-
:de fcie nbs & soli obvertant. ⊃

Ins. Item in solis vicnio debrent
cmta phases sbire: ↄ &c. ⊃

R. atmas forte & candas ↄoid
impdre qomns ho phases sint ita

sibles. cū n. ad solis vcniū fon-
-ujit, incipiunt emittre x se vapres
lucidos, x qbs caudo öpnr, qo qp
ser st x pte soli oppâ: x qbs, sul
& x atmâ lumen sffns reflcti pt
in pte cmte soli oppam, ut in-
-pdiat ne phases pcipiantr.

Ds. 2o cmte alqi sto pstqp ap-
-pruerint, caudâs & lumen & appren-
-tes diamros qtdie minuerunt: 2
o descnderunt in solis vcnia.

R. cr. coa. n offu caudarū pe-
-qntr o delgnr cmte, ni pstq̄p x
perhlio so recessrint. —

Qd ad caudas attinet, varie st

de illis opiões: 1a tradit caudas

nil ēē alid qp jubar solis p trans-

-lucida cmtarū capita propagatū.

at ċā: jubar solis in cubiclo ten-

-broso ō cerntr, nī qtns lux reflectr

à pluris & fumi prclis p äërem

ser volitntbs, adeoqp in aëre fumis

crassribs infecto ser ē splendidius

& snsiū fiti, ferit, in äëre tenui-

-ori ogrī, sntitr, in colis ubi nlaē

maa reflexioi apta nbū ēē pt: lux

n̄ ō cerntr qtns in jubre ē, sd qtns

inde reflectr ad oclos nstros. —

2a opio docet eos oriri ex refra

se lucis in progressu ipsi, à capi-
te cmto in tram. ⟶ at 3à: caudæ
innqz variegantr, qi tn esfiacois
cmtes insprabiles ee slent; lux fixa-
rum v plntarum diste ad nos trans-
missa dmistrat mdium colsts nlã vi
refrcvã pollre. ⟶

Ds. stlæ fixæ esfiacom patntr;
imò Ægyptiis dnr appruisse
mdoqz caudae? r. –

R. stlarum fixarum radiaoe &
scintlaoe ad esfraces oclorum & tre-
muli aëris refrendas ee, qm è
qs admtis oclo telscpiis, evnscunt;

aeris n̄ & ascendentiũ vapriũ tre-
-more fit, ut radii solꝭ de angusto
perplexo spatio per vices detorqueant,
de laori. ā vitri. ebri: apertura nen-
:tqꝫ; qd prẽt. rubre transmiõe lu-
-cis per colos sine ulla refraoe sens-
:bli. qd si unqꝫ fxe caudae ap-
:pruerint, ī rubrũ refraoi fortius
ascendiũ ē.

Adde jxã hanc opioẽ debere hu-
:ne caudas lucidres ubi opta st lu-
:cidora, c̄ tn contã sepe caudsmi
st, ubi optiũ lux tenuis ē, & vldẽ
obtsa. imò lux fxarũ 100es au-
-gri pt mdiantibꝫ telescpiis, nc

tn caudo crnuntr.

Undè tenenda ē sntia qp stablit New. L. 3 princ. prob. 41, caudas scil: nil alid ēē qp vapres lngè tnuismos, qos cpt seu nucle, cmta pt calre suid emttit. & crtè mn=fstid vdr, casaoe cmta ād mgne caudo plrmid ōducre; illo n. an. 1680 mens. dec. ubi ād sole incaluerat, lngè mjrē & splndre caudā emttebat, qp mens. nov. & urlitr caudo oes mxo & fulgntsmoè cmtis oriuntr stid pst trnstid eord pt solis regioē; .e. tn anlqp pvrnict ād slis vcnid, raro aut nnqp caudas

emtlant.

Pr. m hoc sntia, qpa phena caudē pdent a situ cptis, ō a re-giōe coli in qa cpt ōspectr: 2º fiunt p refraōe coloriū, sd a cpte maā suppdit ante oriuntr.

Pr ans. Qia qpi caudē sint ser in oppoē solis, i e, dū sol e in oric v: g; ipse vsū ocddm projcnr; tu deriant ab hâc oppoē solis in eas ser ptes qas cpta in orbits il-lis progrdientia relaquiunt, & il incrvantr, ut qo mjr e deriac eo mjr sit crvaura; fumi n & vapres sprora petunt recta, si

cus fumans qiescit, vl oblqè si
cus progrediendo lca desrit, à qbs
sprores vaporis ptes ascenderunt,
cmqo fum, à sole lngi, recedat,
dimntâ ejs grvâe accelritrice, &
in orbe ampliri mvens, qos retn-
eat impressioe mtûs cptis, tn o
porit sles arcus ĉ cpte oqlbs
pribs describre, qrè in pstrorbs
ptbs boreal nec e.

Ds. 1° Cmto vapres supplere
ō pent, qi ta immensis spais im-
plendis, suffrent; cauda n cmto an.
1680 pst perihelion sud ad 40°

effluebat.

R. cl. ans. n̄ patet hoc si poe

x rarae n̄stri aëris, qi eò mis

öprimtr, mgsqp dilatatr, qò altius

ascndit. Öputaõe ineundo Newt.

aliiqp invenerunt globū aëris n̄

uno dgto latū ð rarae qp heret in

Alne uni, Smdiamri trstris oēs

plntariū rgioes ultrà sphrā Sat.

adimpletram. Proin ð aër adhuc

altior in immnsū rarescat, cmqp

comæ seu atmæ cntæ ascndndo

ab illis cntro invniatr coitr ioplu

altior qp species nuclei, dein

cauda adhc alti, ascendat, debe-
bit sine dubio cē qq rarissima. —
Adde qd immensa caudarū raras
clgr x astris p eas translucentbs,
ꝯ tn atma nostra luce solis splen-
dens crassiē sā ꝑaucorū milliari-
orū astra oīa & ipsa luna pnts
obscurett.

Ds. 2º si caude nil alid sint
qq vapores, nla rao rddi ꝑt cr as-
cendant pti, ad oppoē solis, qq li
bē x oī pte effluant.

R. cf. ans. n asc, ille probr

oritr ex rarfacoe tnao caudarū.
ascendit fum in camno implsu
aëris ei innatat: aër ille ꝑ ca-
:lore rarfct, ascendit, ob dimita su
gravae spcã, & fumū implcanđ
secū rapit, qndni cauda cmteo-
:de mdo ascendat a Sole? ꝑ radii
solres o agtant mdia qe ꝑmeant
ni in reflexioe & refraoe: ꝑ cle
reflctntes rã aoe clfcta clfaent
aurã ethreã ei implicantr, illã
clore sibi coicao rarfiet, & ob dim
:nta ea rarae grvae sã specã q
prius tendebat ad Solē, ascendt

& secud rapiet prdlas reflctntes,

x qbs. cauda c̄pnr.

c̄ducit m̄ ād ascd vaprud, qd

hi gyrentr crcā solē, ac proīn

concentr a sole recedre; cmta vó

vapres hos x se projcit rādem

fitè dī cā, qā tra ālqao vapres

lucidos cmtariū caudis sles x se

projcit.

Qs. an cauda c̄nuó mtanr cun-

scnte mao prore, nvāq succnte?

R. probli, vdri, vapres lento

mu incpre projci in ascu ad

Perihelion, in Perihelio vehementer

projici, ac proin ad magnitudinem excrescere,

dein tempore permanentes columnas per caelos

una cum capitibus moveri: unde quandiu

nobis apparent, ex vapore fere omni eo

constant, quem à parte perihelii asciverit.

vapores tandem in immensum rarefactos

et eâ rarefactione dilatatos diffundi

per caelos universos; dein paulatim in

planetas per gravitationem suam attrahi,

et cum eorum atmosphaeris misceri, rationi con-

sentaneum putat Newtonus. ut sic quidquid

humoris in planetis consumitur, per continuas

exhalationes suppleri, & refici potest. –

Cosmographiæ
Pars 2ª
De Atmosphærâ.

atma ē massa illa fluida, qᵒ globū terraqueū undiqꝫ cingit, & in se aëra, vapres, plvia, &c. ōnet. De aëris grvae & elatrio in Phycâ egims, relqa qᵒ eū spctant, hic tradantr oportet.

Sectio 1ma.

De atmâ grai sumptâ.

ex qᵒ ōstat atmâ.

Qvs atmâ undiqꝫ cncti, ejs ꝗᵉ

oba creu nos psta vdeamus, eatn
infa craoris sapia ita idid it,
ut nqq qoria sint ejs ptes, nedu
qo sit ptiu illaru txra ullo su
pims prcre; unde miru o e si
in hac re variò sint Phoru ojn
St qi in atma nliu ee vlunt
aëre prie lqndo, eamqq x solis
vaprbs & xhalaorbs ee opsta.
— at aliorũ problior vdr opio
asrentiu ee in ea aëre seu cus
fluidu a vaprbs & xhalaoibs
distu, o qdm ita sbtle ac e ot
—hrea illa sbaa, in qa plneta

vluuntr, nqs tn maā satis sbtli
dstutū, xantlao n̄ oi aēre orssi,
a recipiente machno pneumco,
sez ālqd in eo residuū e mao
sbloris, à cujs prclis lucis ous-
da reflctuntr.

Nqs tn x slo aēre prie dcto
ǰstat atma, ǰmxtos n hct va-
pres x trā, mari &c. cabreta
sobri, qs sbtranro xhalagin
qbs

pō vario caarū ǰorsu: grāū
ā frgntres in lcis humdiorbs.
nqs tn absle ē efflura qodā

sbtlia è cribs colstbs emissa in

eā onnqp decdre.

at nqp eadē ē ōw vaprid naq

alii n abndant prlis salnis, aut

aqeis, aut trenis, aut sulphrei,

aut sprbs qibsdā: undè aër atmo

igne fovet, & in veuo mchne preu-

:mco, credla xgr. — Fit m ide

aër mnstruū qodda urle, undè cu-

:perū & frrū xedit; & cra oa citi,

in aprto aëre qp in veuo preumco

crrmpntr.

Prro ex dvisis vaprbs exhalais,

eorumqp effbs varia nscuntr phenoq

q° meteora dnr, eo qd in atmā tollantr.

Art: 2dus

Crepusculum.

ē lux dubia q° oriē solē antecedit, occidē sbsqr: hujus propriè 2, sl. cor 1ª ē atma; 2ª ē other qdam purr, solē cingens, qr di pt atma solis. si nla cel tra atma, q° radios solres refringet, ea tra ps cobied lucda apparet, in qâ sol inveretr, nosqs, si tergid soli obvertrems, nil prorsus ecle stlasqs pererems; pauce h radii in tra impingrent, relqs in

immensū spatiū avolantes neqq ad
nos refringerentur, & qq 1° sol occidit,
statim oī ejus luce privaremur. Atmo-
vero inferior, propter lucem diurnam, non
post occasum radios à sole repressos
percipimus esse à directe; & n nobis
altior sit atma; ipsa diutius, à
sole illuminatur, radiosqq per totum
nostrum hemisphærium diffundit, donec
tandem ad 18° sub horizonte, ut communiter æsti-
-matur, perierit. Simr ante ortum, dum
abest 18° ab horizonte, incipit radere lucem
dubiā, & dicitur Aurora, quæ augetur prout
sol propius accedit, donec tandem protrudit

Deà ante ortū solis & pst ejs occū: lux alqa profluit ex atmâ solis, qo antqm sol oriatr, & pstqm infrà hrte depress, sit, tnqm orbis solis sgmntū fulgdū se ī sprōiā probt: durao tn crepli, qd oritr ex atmâ solri, brvior ē, qm qo ex atmâ râ.

Hnc inf. 1° brvra ēē crepla in sphâ rctâ, qm in aliâ, qiâ sol pene in lrâ ppli descit in sphâ rctâ, adeoqe citi, pevnit ad 18° infrà hrte. —

2° in sphâ oblqâ diuti, durare crepla, qiâ ibi sol oblqè descītâ

ut habitantibus ultrà 45° latitudinis, sit propè solstitia osva, crepusculum omnium per totam noctem, quia tantum abest circulus à polo eclipticae. ⊃

3° In sphaerâ parallelâ debet maximè esse crepusculum, ita ut habitantibus sub illâ sit lux aut crepusculum per annum pene omnium, quia sol nunquam magis deprimitur quam 23°-29' infra horizontem. ⊃

Not: tamen diligenter in sphaerâ obliquâ non decrescere crepuscula eâdem ratione, quâ decrescunt dies, dum sol à Cancro Capricornum versus recedit, quia inter Libram & Capricornum est proclivi

qddā Eclipcæ, ubi exēplū ē oīū bvsmū,
post qd augescit rursus, & fit æqle
exēplo qd acidit sb æqnoctiis, & præ-
-terea tpus, ita ut si ultra Capricornū
Australū versus excurreret, qñs dies mi-
-nuerentur, exēplū augeretur, = sime in
regressu solis à Capricorno qñs
dies denuo crescant, tn exēpla bre-
-viora fiunt, dnc sol pervenit ad pa-
-llelū quendā capricornū inter &
Arietem, ubi brevissima st exēpla,
& à quo pallello usqz ad Cancrū,
denuo crescunt, ut demonstrat Cla-
-vius in Cap. 3. Sph. & post ipsum

Keil Lec. 20. Astronom.

Jxa proportioē qā assignat Clavi;
ād inveniendū brevsmū crepluō ps:
:lâ elvaoē poli, & obqāē Eclpcē
apd nos in lādne 50° 20', dāâ
dclnaoē mxâ 23° 29', crepluō
brevsmū durabit h. 1. 53', & adit
ē amplūdo solis ortva ē 11° 24',
dclnao 7° 15', adeoq̄ erit in 18° 29'
Libræ diū recedit sol à nobs, inq̄
11° 31' Disciū diū à Tropco Cap-
:ricorni vsq nos accedit: jm vò
in ēqaorē & in pallo qōdā inr
pallū brvsmi crepli & tropcū

capric. crepũ durabit 1ʰ 55'. >

C. strictè lqndo nbi limites crep-
:lis assigi pst, qua pident ut plurimũ
a quāe mag qo radios vleat ex-
:tingre, jm vò in hyeme aër ɔ-
:densatr, atqz adeò atma mns alta
ē, & crepũ bwis: æstae ā aër calore
dilatatr, atma altior evadit, &
contr diutiꝰ manet crepũ, contr
æsmatr crepũ cssare, qndo stlle
6ª magnis apprent, & mnè incipre
qndò ille evnscunt.

Art: 3ius

De refraẽe radiorũ solis & stlarũ.

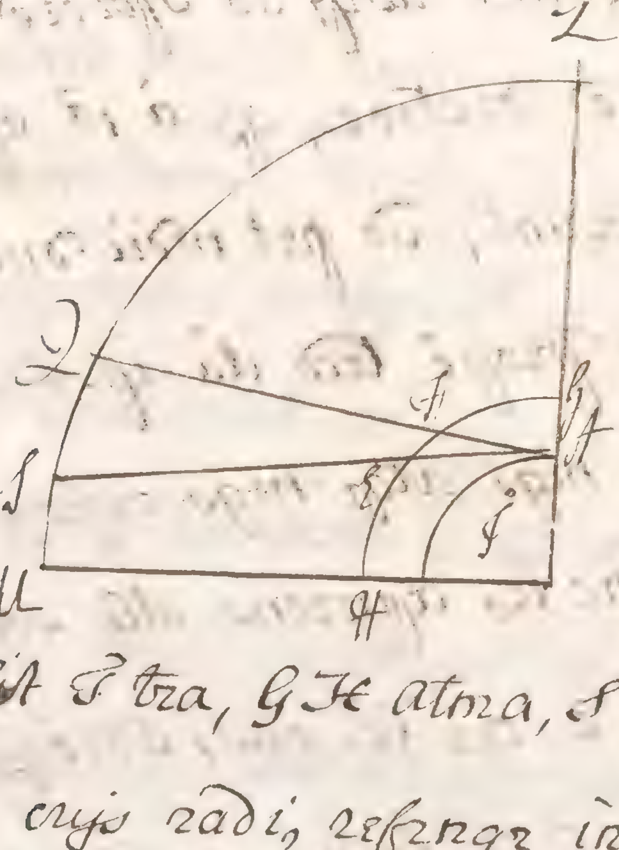
Ex iis, quæ de refraẽis legibus in Physicá dixims, colliges radios plntarũ & stlarũ, dũ ex aëre longè puriore in atmã trstrẽ impingunt, refrin=gi, & in dvrsis drctioibus propa=gri accedẽdo ad ppdrlẽ quo obqqius radii incidunt, eò mjr ẽ refraõ, atqe adeò in hzte ẽ om maxa: quo ã mns obqẽ incidunt, eò mnis refrngunt, ità ut in Zenith nlla omp sit refraõ; imò ẽ vix sibilis,

qndò stlle altd sprà hzte excedit
50°: at in eade ladne, eade ē solis,
Lunæ & stllarū refrao, qos ōariū
invenit Tycho.

Radii pst ingressū in atmā,
ō procedunt usqz ad sprciē trē
in eade drctioe, qā à 1ā refraoe
receperunt; sd prt mdii dnsas
augetr propè trā ità ut ipsi in pro-
gressu mgs atqz mgs refrngunt.

Hnc lc apparens stlle solis &c.
altior ē, qs lc vrus; adeoqz stlla,
qa reva ē infrà hzte, sprà

cũ õspci ptt, huneqꝫ Eclypsis obsr=
=vaa ē, cũ ipsa eet infra, sol vò
sprà hzte. oba n̄ apprent in
eá lcá in qá ád oclũ radii dir=
=guntr: hoc æ figurâ sqnti ptebit.



Sit T. tra, GH atma, S lc, ui
stle, cujs radi, refrngr in E ad
oclũ in A, in tra sprcie: lc, qu

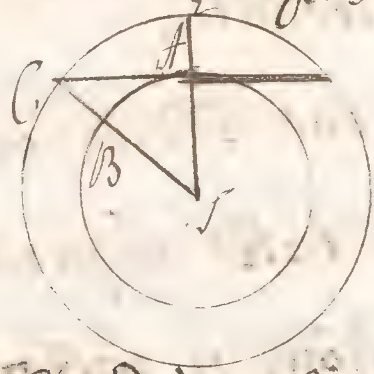
-prens stlo erit Q, qi ret drctioi
a refraoe prodnti.

Hinc m rao redditr cr sol &
luna prope hzte apparant, sb
ovali figurâ, limbi n infrores mgs
refringuntr qp sprores ità ut di-
amr vrtclis ctrhatr o trhzlis,
qo utrinqp eqr refringr.

Porà ex his clges cr sol o mn-
rc acbr id dtrimento aspci pot,
o in hzte vrsatr, qp o propi,
mrdiand accedit, proportioe vò
uvr spacio atmo, qd provit radi,

in h:te & zenith sole sc inoriens

pr prob. 6. S. 3e cap. 5. de trig. plan.



Sit C radi, solis in h:te seviens

ad oclm in A in tre sprc: sit

E radi solis in mediao seviens ad

eunde oclm: CBT e hypnsa trct

lei rectangli. r ejs qrd eqle e

qris latrm CA & AT sul smptis

vi pnatr aldo atme 50 mil. & sm

diamr tre 7000 mil, & qrd hyp-

nse erit 16402500, a qo si sbtrhat

quadratum ſemidiametri, seu lateris AJ, i.e,
1600000, remanebunt 402500 quadratum
lateris CA, cujus radix, si extrahatur,
invenietur 634: ergo lat. CA est 634 mil.,
altitudo à centro EA ſuper 50 mil.: ergo
ſpatium atmosph., quod radius ſecerit in
horizonte, est ad ſpatium quod ſecerit in
vertice, ut 634 ad 50, adeoque ſpatium
CA est plusquam 12ies majus quam EA.

Quod ad obſervationes refractionum attinet,
ſciendum est ſoli, earum ſi circa stellas
fixas, quæ parallaxim non habent, quam circa
planetas, quorum parallaxes certò non constant.

c. obsvaões prius fctæ ō st admitt-

dæ pro qovs pre, ni ōstet eandē

ee aëris dnsiaē qo n dnsi, c mdiū

eô mjr ē refrao; undè stla dvrsis

pribs in eâdē alne dvrsā refraoē

here ppt.

x dctis raoē clges cur Batvi in

nvâ Zemblâ solē vidrint 16 d. antè

qu, âd hztē prvnrct, i ē, qndò erat 4°

infrà hztē, si vid-sit qd narrant,

ū Mopertius ō socius suis vrs; polū

Borealē nupr missis i ngat; qos

jxà regra sopi, fcta crcà aërē

in dvrsiū dnsais gradbs, ordatā

i lngè probli, qd ferunt Bzatri;
aër n̄ in nvâ Zemblâ ob smu
frigus mxè ɔ̈densatr. —

Art: 4us

Aldo atmo.

Hallerius dvrsis xpris iñonit
pnd, aëris ee ad aqq ut 1 ad 840,
ut 1 ad 852, ut 1 ad 800, qo pre
mrcri, erat in Barometro pol. 29
$\frac{3}{4}$ altus: brvtr sat scrè dtrari pt
ut 1 ad 800; ɔ aër mdiu iñr frig
& calid stard ~~...~~ntreat, & mrcri, 30
pol. attngat. idd iñonit specd
mrcrii grvad, ee ad aqq ut 13 $\frac{1}{2}$

ad 1: undè mercurii gravas ad aëris gravad erit ut 10800 ad 1; & colm-na aëris cylindrica 10800 pol. æqlis erit pollici mercurii: si in aër foret ejd ubiqz dnsais, atmo altdo haret tmmdo circiter mil. 5 $\frac{1}{88}$ numerando 633-60 pol. ad 1 mil.

at multis experis constat aëre ēē paris ubiqz dnsais, qo n̄ altior ē, eò mnis atmo incumbentis ponder ōprimi, adeòqz vi sá elasticâ sese in ampli, spaio dilatat. — solebat hoc proportio assignari pro incremento rarefacois aëris, ut cresceret

rarfao in ȝnuā progrssioe geōrcā,
pīt crescit aldo in ȝnuā progrssioe
armcā: ī qd ser lād hel in vriis
xppris fctis in jplns sypriei brstris.
Obsrvaoes tn Casni & aliorū
(his. acad. reg. an. 1703 & 1705)
incrtā reddiderunt hanc rulā:
ipsi ndᵃ plūriū montiū alnedent
metiti, brōmtrmqᵖ obsvassent, in=
vnerūnt mrcriū in mntis cacmne
alti, ascndio, qᵖ rao proprtiois pro-
dcto pstlabat. phoni hujs cada-
=li vlunt ēē vapres, qⁱ infrà
montes aërē in mjre qrac ore=

:rant, ejsq vi elsca debilitant; et

vo in montibus smae sint multo

pauciores, hinc liberior aeris vis ela:

:sca tunc illic ultra proportionem at:

:tollit. alii etiam volunt freqntres

clegi vapores in mntium culminbs,

qbs augetr & adjuvatr aeris elatrium.

Quidquid sit certum est non hinc aeris

densitatem ubique eandem non esse, et non sint

ubique iidem ejs elaterii effus: unde

& atmosphaerae altitudo longe ultra 5 mil.

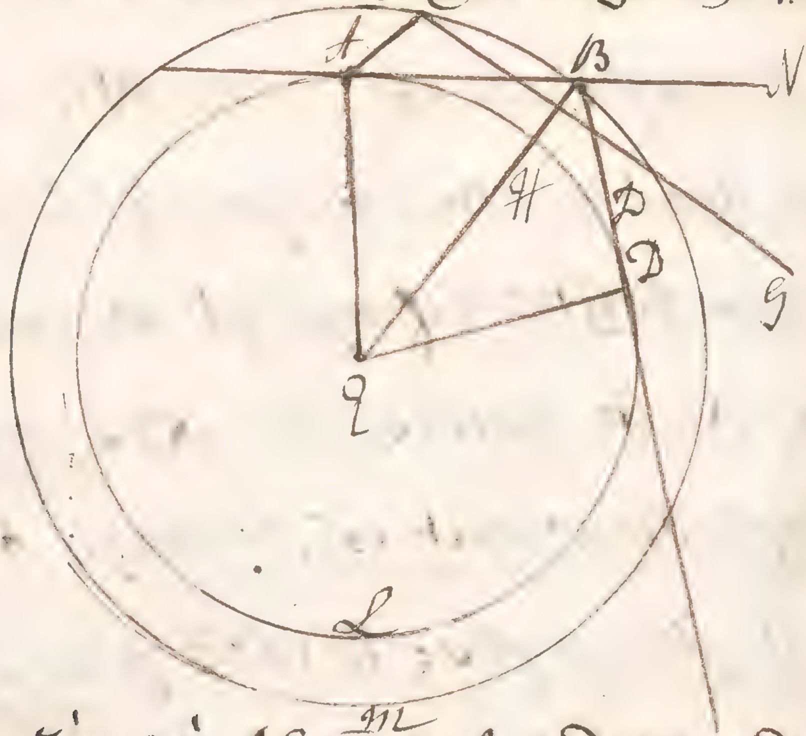
augeatur necesse est: id quod non observatores

crepli ostrant.

Si non statuamus depressionem solis

media intr mæa & mnma, d w du=
=rat creptd, ee 18°, radi, SDB erit
1us mnē & ulm, vespre qi à smae
atmo BGm refringi pt ad oclm
in A in specie tre ADL, adeoqz
angl, SBd erit 18°, & angl, AED
erit illi oglis: ro eodē pris spao
mtu ogli lra BDS fuvit à Bd
ad S, qo lra ED fuvit eodē mu ab
EA ad D: ro in A erat fepples, &
in D st m fepples: r illi angli st
ogles, & uterqz ūnel 18°, r secans
EB Dvit eū anglm in 2 ogles
AEB, & BED, ro oqi dstat à predi

A & D: r EB ē secans angli 9°...



Jm vò AE ē et rad. v semd. tro: BE vò inclit ∂ semd. tro tū alnd atmo: r inr semd. & alnd atmo eadē erit prortiō, qo ē inr rad. & xcessū secantis ∂mii angli 18° sprà rad. ∂ vò r ad. trnsiens p atmā p refraoē algm accedat

visi, et, tunc pro illa refraone solent
minuere crctr $1^{o}\frac{1}{4}$ ac proin vbe js=
drali ut secans angli $8^{o}\frac{1}{2}$ sit tro
semid. crctr 4000 mil. rad. 100000,
secans $8^{o}\frac{1}{2}$. ē 101110, xcess, 1110. sit
ii prortio 100000: 1110:: 4000
: 44 crctr: 2 aldo alme jncl 44 mil.
Eâdē methodo utrius, srvaâ pror-
tioe, si crepulo durct dnc sol
punrit, ubra 18° infrà hzte: sc
Bononie obsvavit Ricciol, crep-
lo durasse ad 20° infrà hzte
pvenisset: qo pre, jxa prortioē

aqua posita altiori atmo-œral majr, ut patet. Sectio 2da

Meteora aërea

Art: 1us

Ventorum origo

& Atlas.

Venti nno aes pene ilgunt aëris ōmoē seu fluxum, qīd ē, in:qit Sen. l 5, nat: Quæst:, ē vent, ni aër fluens impetu, anit cas, aëris ōcitatio? at ō levis ē aëris ōcitao, tūm aura ō vent, nnatr, hnc qa fluxōis huj, ca ē, eadē ē venti; scl ē srvao atmo aquil

trnqillitā ſpſurat, ità ſptrbāo eodē
pō mjre aut mnre ĩnequaẽmjr
aut miñ; ǝ̈mod ſqar. oportet. &
qdm vrio ſt eo eqbriū aëris ſptr=
bantes: 1º ñ halt, ẽ mari trãve
rumpentes, ĩ ẽfciunt: 2º rarfa=
oes aut ǝ̈dnſaoes in uno lco mj=
res qᵹ in alio: 3º imbriũ deſcñ;
4º nubiū proſea, &c.

Itenā ſm turbo deſcit ante im=
bre largorē; nubis ñ proſra ſlt=
ũ aëris effit, qª cebriori mu ſæpè
ſertr, qª vapores ĩpſi aut nubes
jã ǝnſaa, cujꝰ grvāſ huic pro=

:trusioi resistit, unde cadente plu-
:ia plerumq cessat vent,.

Vu grales & freqentsmo ven-
:torw. ca st frig, & calr: frig, n
vapres & aëra ultra statu suu na-
:ale ōdnsat, & qo in spao mnri
mj, pnd, qs fuerat antia, ōnetr,
:sqsq ōmoo; ēōa calr vapres a
:ërcmqq dilatat: qs prioir ampli,
spaiu ocpant, in qos cedentes &
leviores vcn, aër gravior & dnsor
viruit.

Nives qoqq in montbs & glcie
solute inrdiu ventos grant, nqq

n in solidam aquam dissolvuntur. inde
quoque fit ut flatulentæ exhalationes
antequam ventum efficiant, in nubes con-
crescant, hinc nautæ dum nubes con-
globatas circa horizontem easque colores
minus opacas imo paulo splen-
dores continentur, fore ut ventus ex ea
parte brevi oriatur, & plerumque vehemens,
augurantur, credo quia hæc nubes
ex ea constet materia, quæ in ventum
facile dissolvitur. —>

Jam vero quod ad commoda attinet,
quæ secum afferunt venti, præter
utilitatem in re mercatoria, primo aerem

purgant, vitalemq; reddunt te-
:tris, ĉ tn̄ sn̄è iis putrid, &
sanari nixi, stagnando evadret,
imò in qbsdā regiōībs, si diu-
:ti, absint venti, pestis plerumq;
sq;, svè n̄ pestis oriatr æ hu-
:mdo caldoq; aëre ul mrād ps-
:tras, svè vapres veneno infecti
svè ōnq; āalclā in aëre voln-
:ta, svè qovis aliā sit ejs ca,
ō pt ō cē ingns unti utlasi
aëre tprando, alitbsq; pstferis
dispergendis. — 2° utlis ē ad

aaliâ illæ despanda, quidmodo
& mora fructus pretiosa ē. —
3º ad vegetaōē promovendā, dū
sēīd. prclas fructiferas, sales nim=
pè &c. ī gus affert.

Art. 2dus

Venti grales
Eorumqz affioes.

Venti grales vulgo nrantur
32, qi totidē pyxidis nauticæ partes,
seu rumbi vel in pyxis nautica
hætē exprast.

x his 4 sl cardinales, 28 collat.

:nales. — Cardnles st 1º Boreas qi
à 7trioo flat. — 2º subsolanus,
qi 90º à Boreâ distans flat ab
oric. — 3º auster à pncto 180 di:
:stante à Boreâ. — 4º Zephyrs à
pncto 180º dstante à subsolao.
horu in crclo su, hztis grans as:
:sgnatr; qrbt in qrans hct 7 col:
:latrales in qlbs dxtals, adeóqp
spaio inr qemlbt Rhumbu e 11º
15'. horu ppalis in qolbt qrnte
ille e qi mdiu possidet, i e 45º,
nnqp hct ōppiu x 2 crdnalbs ii:

vienorbs, in qâ ōpaes 1ª ser lcu
tenet Auster & Boreas.

Oliᵈ vò græci 4 tm cardinales nu-
bant, qbs postea 4 alios addiderunt; — 1ᵘˢ ubi sol oritr in solstio
hyemli inr sbslanᵈ & Austruᵈ,
Eurus qs dr & à Gellio vulturn.
— 2ᵘˢ ubi sol eodē pre ocdit, dr qs
africus. — 3ᵘˢ ubi sol oritr in
solstio æsvo subslanᵈ inr & Boreaᵈ,
& Aqilo dr. — 4ᵘˢ ubi ocdit eodē
pre, & dr Corus. Hıs postea 4
alios Græci addiderunt, Latiniqs

ad 24 adauxere.

Venti ea sortiuntr nat, qo mae ex qa prodeunt, ꝯunit: ōtr eade ē in oibs lcis, qa in itinre so variis occurrunt effluviis, qbs ꝯsocianti. Dre subsola, ex Arle cald, ē, & sicc, in his tn regionibs, Belgio, Angliâ & Galliâ ē plerumqs frigd, qd Rusia, Polonia, Germania, aliaqꝫ lca frigidra ꝑtransierit, in Italiâ sepe ē humdior, qd â mari adriatco spiret. in Indiâ ex

ocdli, ut plerumq e salubrior &
frigidior. qa in oriali & africa
adeo calidus e & siccus ut ferri
vix pit, qd arenosas & caldas
regiões percurrat. fit tn pt ut
venti è locis sbterraneis, unde è
erumpunt, calore suo vl frig.
ptrahant. attn d frig. & calore
ppriaè ad tra nra dijudicems,
hnc ventu, qd hyeme caldu, e
unde estate frigdu censms.
Venti ocdles st humidiores,
nc admdu frigdi. frte qd a

mari spirent; unde ex hac cœli
parte magno plerumque tempestates ori:
:untur, ipsique maxime qui ad austrum de:
:clinant, et a solstitio brumali flat
africus, hinc enim copiosi imbres,
nisi quae alia causa obsistat.

Boreas pro loca gelu et nivibus
referta pertransiens gelidus est et
siccus pruinasque innumeras conglacias
secum advehit, terrae frugibus ut plu:
:rimum prodest, aut pruinas salinas
secum deferendo, aut impediendo
ne illae dispergantur. in locis adm:

mare ſtriale vergentbs ſæpè
Boreas & nebulos,, qd m accidit
ꝺ Auster à Borea repressus
in ſeipsū reflectr. —

Ē vò austr humd, & cald,
qi nubes laxat & resolvit, ꝑ
à locis caldiorbs ꝛu. ꝑi erumpit,
flante hoc vento ſæpi, pra hu-
more solverꝫ nervi ii proꝫtꝺ
qi voci inſerviunt, hinc ꝑbrinqꝫ
humido aëre linga vacillat, ꝺà
boreas poros astringit, nxiusqꝫ
evadit, si ꝑspiraoē inꝺnsblē
prohreat. —

Not: hoc ilgrida ee de leis circa nos, pstis, ubiq Tropa capric. vs; polo ausrale, austr frigdior e, & gelu nivesq ptrnsit. Boreas eja e leis caldiorbs adveniens, calre secu adfert.

Art: 3ius

Venti subitanei
& virulares.

Venti subtnei & vehntes pe-
nes mao aut agtaois dfras, vria sortiuntr nna: coi tn vce procella dnr: vnt, cremact,

& se in ipsâ vitgne ӡcitans,
turbo vr: ○ diuti, volutans
inflammatr, Prester vr: qi nil
e ni turbo ○ fulgre.

Hecnephias e vent, x nubi
vibrans subto prorumpens: fre-
qns e in mri Æthiopico Bra-
silia, inter & Afrca ausrale pene
promntrium bone spei, & in
Guinee littorbs sb eqaore.
ventū hunc presagit xqua
nebla obscra, alqao plres
sul sese dilatantes, anteqs

Ecnephiæ erumpat, int americã
& africã propè æqtorē veniunt
hæ procellæ p totū annū propiè
p men. aprilē, maiū & juniū
ex nebulis nigris, cœlo alioqn
sereno, mariq tranqllo ter qatuvè
qtdiē, erumpunt; aliis mensbs
ejdē maris alias vexant ptes.

At in faucbs maris arabci
in arabiâ & æthiopiâ pclarū
ē procella, nubes densa & obscura
ex parvis nebulis rubris coalescens,
tenebris diē involvit, subitòq

erumpit procella citò abitura,
q° tn arenę rubrę cumulos trã
mariq projcit, sb qbs ingēs
mercatorũ, sul itinerantiũ ob-
ruuntr: qrã, singst Varen, à
7tr 100 orientis vtus, qđ vrgit
mare rubrũ, & inde arenas
rubras qas elvavit, defrenis
ab iis cabrũ sũ trhit, easq
hic dejicit. sb his arenis ca-
dvra pereuntiũ exsicca a solis
ardore mummia drr. harũ
procllarũ ca 2æ ēē pt; 1° sũ

nubes decidens, ~~arena~~ aëra ve-
:hnti, ̃mveat. – 2º si spirus sul-
-phrei ō impetu excitid illā x unā
pte aliis occlsis, adaperiant.

Typhon

ē vent vhens qⁱ, ā vitce
ruit, aut ab oēdē in oēs hrtis
plagas paucis horis vagato,
seu ̃ariū venti inv se ̃lidant,
seu vent ō impetu erumpens
ex oppo in seipsū redeat & ̃-
:torqeati. in qbidā Indci maris
lcis, ō ubrā 6 h. durat; in aliis

ſt 20 h. & ampli, dnati, ple-
rumq ubi procelsi montes in
littoribs ad ortu tendentibs as-
surgunt, in Insulis Phillipinis,
& mari intr Japonia & India
interjecto Typhnes crebri st, hno
procelsa dicunt nugao: in patenti
Oceano rari st, aut mnis no-
cent; eos insidiosa aëris ten-
giglas & maris plrumq ante-
cedit, forte qd venti varii sint
qsi in eqbrio: —

Art: 4us

Venti anniversarii
ulares & Periodici.

Venti annivsii inr grecos
propriè celebrat Etesiæ, vrz stg
2ces, 1º æsvæ & s^t Etesiæ, quæ
validres st. 2º hyemales, caly-
donia, aliàs Ornichiæ. æsvæ crcà
solstiu æsvu incipiunt, à pte
Boreali vniunt; ncte cssant,
nqs vldè dilucló redeunt, deci-
dunt crcà mens. 7brem. oriri
vdnr x nivbs colliqais in mac

ꝯdoniâ & Thraciâ ubi st montes
ꝑpetuis ferè nivibs ꝯpti; se͡c
Mādrito in hispaniâ mgnâ
æstatis pre flant venti boreales
à jugis Pyrenæis.

Calydoniæ st australes dbltes,
& pariꝰ ꝯstntes, incertæ st earū
periodi, dubiaq̄ꝫ ē cās, ni fortè
sit nivīū colqao in montbs mo=
:nomotapæ ut ꝯjcit Vareni͗,
ubi æstas ē, dū hyems ē apd nos.

Venti rubres qͥ ꝑ totū frè
annū in mri spirant, st tnmdō

in Zonâ torridâ, iiqꝫ oīiales, aut
orienti hinc indè cllatrales, inredu
tn ad 7o xrà Tropicos vent, ille:x
:currit, o tn eadē ē ubiqꝫ cjs ūs, ob
una, qꝫ vius in lcis occurrunt, obs.
:tcla, mnis variant in ea Oceani
pesti pte, qꝫ sb tropcis jacet, ubi
oīū lngē tūtsma ē nvgao. mūs hujs
ca ē tio mus, sol n ab oriē aēre
rarefait, qi pstea mgs dns, in ejs
lcū ruit, ut eqlbriū reddat; so:
:lisqꝫ redts qtdians mū qi pti
nete dsecrat, redintgrat; n nau
:tis oibs testantbs, de die vegetiorē

Hinc m̄ sqq ventū huncitrà

æquorē cū ex pte Boreali orientis,

ultrà vò ex pte australi: magis n̄

rarefit sb æquore, cū bis quotannis

verticalis ē sol, qm sb tropicis: un-

dè aër densior hinc & indè vers;

æquorē tendit.

At propè oriente rao kenda

ē tū situs montiū, tū nao tel-

luris; montes n̄ ventos sæpè ex-

pellunt; tra in plana & torrida a-

ërē calido so ultrà modū rarefacit,

in cujs locū aër alioqui rar, tn

hoc densor irruat necē. Hinc

propè littra Guineæ vent, oc̄dlis
oriali prævelet; eadē ē ca mala-
-tiarū ibid. freqntiā; atmo n̄
iñr 2 ventos ɔ̈arios & æqles sæpè
in æqlbrio sustentatr, ɔ̃d lr eorū
vi ejs pnd, mnuitr, undè vapores
sustnere nqt, ɔ̃d imbres copiosos
sæpè demittit.

Cūm vò aër dnsiōr leviorē sur-
-sū propellat, qⁱ recedit ab iis lcis,
ubi mjr ē æstus; hinc in rgioe at-
-mo sprori vent, ē ɔ̈arii, infrori;
qd eò probbli ē, qiā frè instreo
sl venti mutaoes, did ltur ɑā lit-

:mites hujs venti rularis.

Huic m̄ acedit phenon ven:
:toriū periodcoriū, qi mōes, anglicè
monsoons vr; n̄ xra ladne 30°
x pate breali indici Oceai jcent
arabiā, Persiā, Indiā &c. qo
regioes, ō sol vis; Borea tendit,
ardorē ingntē pauntr; ō vō vis;
altriū Trop. recedre obsvatr, mi:
:nuitr plrmiū ardor propue ā
mntiū tractu hyec nvc ōtctoriū,
spr qos aër trnsiens frig, ōtrhit.
unde aër, qi p rulā gralē ab
oīe mōri pectr, qndōqi caldiā,

qndòqp frigdiōr e aëre, qp̄ in
sproti rgiòe ab ocde reflectit; a=
=deoqp alqao hic alqao ille vnt,
tm̄ infrà prevlet.

Hoc tm̄ ulrī, ē, qp̄ä modes
austro ocdles mens. aprili inci=
=piunt, ē sol has rgioes torrere
incpit, sbri vò aqlo incpit, ē
sole recdnte, ardr mnuitr; ādē
dr cā a pte ausrali aqaoris
lor, succit Euro, ē sol ad trop.
capric. approspnqare vdr.

Er ā hoc modo variao lou
ō heat in mari othiopco inra

go ōdē ladnis lmtes (ubi ser rg=
nal cur,,) rao dilucda eddi nqq;
nqp m cr tm orcá 30th° ladnis
hoc coniat, & in plbs Indci
Ocrai brealbs tm, ◦ tn ausrles
ppuū heāl curd.

In his rgiolb nli fre st vnti
ōstnles; mgnâ anni pte rgnant
ocdles, aut eorū collatrales; vno
pre breales & altri propuè
dnanbr; fite qd tunc pris sol ad
ptriales plgas deflctns nubbs &
nivbs opacas, mgna vaprū copiā
sursū tollat, & calre diurno in

ventos dissolvat.

& sanè circà utrumq æqinoctium crebriores sl vnti; qd habit, nc nimium æstuentr in æstate, nc plus satis densentr, ut hyemis pre.

Art: 5us
Ventorum vlcas
& drctio.

Derham in act: phys. num 313. psl mlta expra obsvavit vn-tum om valdsmm ò ubrà 50 aut 60 mil. angl. p horam procdre. vntum vò satis vldm. qlis ìdntdm ögit, 15 crctr mil. eodd pre emen-tri: plrmorm vò mm ìtà lend

ce ut 1 mil. p h. vx ōficiant. —

At undè trnsvrsa & obqa

mod oritr? — mnmè à durnā

cali vrtgne, ut plcet Arli, sc n

ocs vnti ab ortu flarent, nubsqe

in occid pellrent: ptí, d crdid ∞

vriis, qe offndunt, obstclis, diu

eò fcruntr, ubi mnr ē rstia. hnc

sæpè occrsu mntiu aut dnsris

aëris resiliunt, & repntè in ō-

arios mtantr; undè in mdio mri

mus ille mgs oqlis ē, ni ulti in-

sla obstant, aut Promontoria:

ōnnqe ∞ 2 vntis ōariis, ōpsto

nv, xortr.

Ideoq̃ ā vnti ascendunt, dfte

ō pums, mons ē in Azorbs, vlgò

Picus Tenariffe; et ille in amrcâ

montes Peruviai ab oibs vntis

tuti: refert Vareni, obsvaoē Da-

-vidis Fröditchii, qi ā an. 1615

ad smū caeumen mntis Carpathii

in Hungriâ pentrasset, adeò tn-

-qllū & sbtlē aëre ibi invnit, ut

ne pili qdm mū sntiret; ā tn in

ascendndū in depressorbs mntbs nu-

-bū vehntē eet xpt; atq, ut ipse

autmat, illi, mntis aldo ad mil.

germanicū assurgit. —

Qs cr Boreas fre rctá decidit, & auster ex obqo spirat? —

R. ideò fitè Boreā deorsū ruere, qa' aër in ptbs brealbs ē mltò dnsior & grvior, undè pndre so restiā aëris levioris fclis evertit; aër vò qi ruit à ptbs ausralbs mnis dnsꝰ ē, undè ab aëre infiore fcli, sustntetr, spiratq ex obqo. à parae racis jariū evnre debet vus polū antarticū.

Sectio 3ia

Meteora aqea.

art: 1us

Nubes.

Nubes & neblæ ex vaporibus seu particlis aqeis in aëre vectis, & magnâ copiâ collectis oriuntr: nubes et à neblis in hoc tm discrepare videnr, qd neblæ graviores sint, terræq viciniores; nubes vò in aëre perslo altiori lco sustineantr. Hinc qi celsmos montes superant, hi cm ad nubium regionem veniant, spissam & opacam neblam ingredi sibi videntr;

vapres hi ð inr se arcti, impleanter, radios solres pené oes remtunt, nubsqp dnso & obscro apprent; ð vò remotiores ab invicè, tū lucido st & fimè diapхno.

at qâ vi nubes in medio se spece leviore pensles herent?

Ptū untorū vi, ptū qiâ ageo prclo st solis calris rarfcto.

— ō inögrué xplatr in sporndo prclas nubiū ēe sles proris bullis; seu vesclis, qas x smegmte & aqâ, calmo pueri flant, qo lct-

ɔerius qsi cute aqeâ ɔ̈tegantr, hent
tr mad inus rarfctā aëre levio=
:re. Qd si vntorū agtao, aut mn=
:tū ɔ̈crsn has bullas ɔ̈fringat,
tū decidunt vapres.

δ ser eadē ē nubiū aldo, qn=
:doqꝫ st tro admdm vcn, qndo $\frac{1}{2}$
vl $\frac{3}{4}$ mil. angl., ūndiū m̄ ad 1 mil.
ascndunt, raro aut nnqꝫ ulrà, ut
patet ex obsvaoībs virorū perits=
:morū, raoe earū alne meliēdi
in almriâ traddms.

Qs. undè cœruleus colorū cole
oriatr? —

Ret New. L. 2 optic. — Vapres
ð 1ª ðdnsari & inr se coalscre
incipiunt, ad mole ponre apta
colri coruleo debli reflctndo: at
pstea ð vapres ad mjre dnsae
prvnrint, alios colres reflctunt. —

Art: 2us

Pluvia. —

antqn de pluvis dissram, sci=
enda e ingnte vapru copia ab a=
garu sprcie avolare, i.e. qd maa qdda
ethrea & qpi ignta atmos aqe aglet,
& in vesclas dilatet; in qo stau, ut

osdit Hallei, si diamr atmi sit 10ᵃ
mjr, qp antea, erit specê levior aëre,
& qdiu eâdē vi pservat flaus ille
caldo, qo dilatatr, tmdiu ascendet.
idē auctr, æpro facto in aqâ, ci 40ᵃ
ps salis immixta fuit, qoqp ft ther
:mmᵒ grad calris refrebat eqleat-
:dorbs esvis, invenit vapres à telâ
sprcie h. 12 ascendre eqles 10ᵉ pti
pleis, i ē, sgli 10 pol. qri in aqo
sprcie ft die in vaprbs emittunt
1 pol. cubcm aqe. hcti nil jedtr, qi
nos decidns ad mnmm eqat vapre
tm ascendntes. hnc si eâdē proportio

calclu refras ad immnsa Ocea spaa,
incrdlis vapru sma prodibit. adde
qd in xpro prodcto lcu o fuerit
vnt, qi tn lnge cpiosores alqao
vapres attollit, qs calr solris. –

Nol: m e vapres hos aqe
spciei, e nl, spirct vnt, adhe=
rescre, & contr tot prclas avolre
o poe, qt avolrent, si liber foret
xus. vapres hi sc adhrentes e mgs
refrngant radios, qs aer cois, fte
in ca st ov mri oba dssita appa=
reant elvaa: radii nempe qi ab
illis obis vnientes sprà cpt obsr=

:vaoris trnsirent, pr dnsra efflvia

ad oclid refrngunt. —

Pluvia

E aqa ex vaprid in nubbs ĵcre:

:tioe gultiđ decidns. — vapres hi

ĵcrescnt ↄ pr aëris frigᵒ, aut aër

ĵdnsantr, & in guttlas abeunt, 1ᵒ

insnsbles, dein in cadndo augenr,

dđ alie aliis ĵsocientr, atqe adeó

mjres qᵒ ex sblmri lco dilabunr,

hnc estae, ↄ nubes mlto sint al:

:tres, gutte mjres cadunt, hyce vó

sblai vapres vl std in pluiađ

cogunr, undé mnuti, cadunt, vl si

alti, evehanti in nivẽ migranti;
eadẽ vapru ɔ̈creo m̄ vntis fr̄tè tri-
bi p̄t, q̄d vnt, in nubẽ incmbns
aqeas prclas paulaṽ ɔ̈gregat, a-
liisq alias admovet, & sc mjres
fiunt, & p̄rio p̄ndre ad trã dilabnr.

ō ē eadẽ ubiq pluviarũ deci-
dntiũ q̄nas: x obsvaorb̄s Towneleii
de Townley in eā Lancastriæ p̄te
propè mntiũ p̄des si toto anno
stagnret ad 42 pol. ½: Pisæ in Ita-
liæ ad 43¼: Parisiis ad 19: Insulis
Flndriæ ad 24.— Qd ad pluvias
prodgiosas attinet, ferunt historiæ

sanquē qñdoqꝫ ꝑluisse, fētē effliria
qœ x trā rubrā ꝓdiere colrē
illid secrd trxerunt: sæpē m̄ à
Papillione qōdā, did in metamor-
-phsi ꝑpola sa xuit, guttœ rubrœ
decidnt, qas vlg. ignarū imbri
sngro attrbuit. merret vult trit-
-ci nil alid ēē qꝫ hedrœ baccſrœ
grana à Sturnis devoraa & x-
-creta. — Art: 3ⁱᵘˢ

Aura Serotina

ros, capilli Venris.

aurā serotnā vcams tenuē il-
-lid pentrante haltū, qī diurno

solis calore unà ꝯ vaprbs evcta
ma post solis occū recidit. hoc mul-
tis perniciosa ē, iis præcipuè, qbs ē
laxior fibrarū ɔtext, & pori a-
pertiores. ostac qdm tēdi, post
solis occū dilabr qp vere & aut-
umno, qiā mdco frigre ē op, ut
vapr aëri pmxt, halu ɔcrescat;
hyeē āō sat ē calris, ut exha-
laō illa sursū attollatr: vento
flante dssipatr. pluvioso cælo ō
decidet, sd in pluviā abit: sb ocp-
nctio malgnior ē & mxè in iis lcis,

ex qbs mnrales halits evehuntr, nd tpras calre mgnā vporũ cpia attollr, mxè in lcis palustrbs, qi ↄ acrorbs cusclis abndent, sc:lè sbeunt captis poros, & humrũ distllaorbs, dentiũ dolrbs, &c. viā aperiunt. —

Ros ē sbtlior & tenuiòr vapr ncturno frigre ↄcre, i insnsbles n aqæ prclæ, trnqllo mxè & sere:no cœlo decidntes herbarũ foliis adhærent, & cllctæ fiunt snsbles; ab aurā vò sertnā in eo dert, qd hoc paulũ pst occũ solis,

ros vò antè solis ortū decidere
soleat. Ros acrorbs cuscelis pims-
-colo; hinc segetū rubigo, & ros
spicā exceptus ardore solis putres-
-cit, vere & autmno ē uberior, ni-
-mio n̄ solis ardre humr ille ɔsmr;
hyēē vò parū humris evehitr.
Ex pruinâ & neblarū relqiis
calre solis exsiccaīs exrgunt phil-
-amnta qodā pr aëre autmnali
prortū pre volitntia, qo vlgò ca-
-pllí venris applantr; ptio cre-
-didrū philamnta hoc ex aranea-
-rū telis sursū evectis, & ab ardre

solis xsccais provnre. –

Art: 4us

Nix, Grando.

Nix nil alid ē qo aqei va:pres, qi spribs impregnai, & in descu so x altri atmo 2gioe aliis prclis nitrosis & urinosis seu acido-salinis occrrentes, aut vnti aut 2giois infioris figre crrcpti in glci ē tenuisma colesent.

Flocli ejs pr se stlarid instr 6 radiis seu anglis disti apprent; sepè tn irrulre fira hent, ptid qiā mutuò ōflctu cuspides ōfin-

-guntr, ptē qiá calre algo ſituito
ſæpè diſſolvuntr qād ptē; ōnnqꝫ
m̄ plres flcli inr se ꝯsociantr. —
hanc furā ex salbs orīri sntiunt
auctr̄es, ob qos fclē eputrescit, &
agros fructfros rddit. — st qi ng=
-ant hunc effiā inci nois vrtui
ee adsernāiā, qppè qe plntas
tmmdò à frigris vntorumqꝫ in=
-jriā turatr. — ā vr nix glcies
qodā sit, qe dura ser ē, vr tctu
mollis sntitr? — ō aliā de câ qe
qd cuspdes ejs & angli ità sint:

tenues ut ſtelè dissolvantr, alio:
:qin digitū vulnerauri.)

Cū nubes et sblmres ac
flcli nris 1ª calre ligantr, tū
sbeunte frigdre vnto itriū ӧgelan:
:tr, grandnē probent. dā nvē
ligesentē vnto frigdior crripit, ac
mltos flclos in unū clgit, tū grn:
:do ē mjr & furo polygono, & pro:
:cps ruit. hujs xma sæpè pellu:
:cent, qd eas ptes fri ligſctas
frig, ocfurat; hnc nix qdā in
mdio opca remnet. estae freqntior

ē & mjr, qd tnc nubes sint sbli=
:mres, nqq hyeē sat ē cabris qi
ād nubes ādeō sblmes ꝑveniat:
infiores qdm attngit, sd citi, nix
soluta decīdit, qꝓ frigre ītrū ō:=
gelri qrat. fi m ꝑt ut guttla
jm in glcie ōcrea in ipso descu
augeatr, dīū nvas spcies aut
luncas īiduat.

Sectio 4ª

Art: 1us

Tonitru, fulgur

& fulmen.

Tontru nil alīd ē ni son, qd

cedit exhalao incensa intrá nubis
viscera discurrens, quippe subtâ &
vehnti aëris cmoe ortr, ut vdems
in pulvre pyrio accenso: accen-
-duntr a exhalaones seu prcla
nitrosæ & sulphreæ è trâ ascen-
-dentes & mari, & in nubibs collecta
priâ sâ frmntaoe & aëris calre
quod vdems tartarum fulmnans, qd
ex tribs ptbs nitri, unâ pte sul-
-phris, & 2 ptbs tartri in tenuis-
-simas prclas redctis cstat, accendi
& sonum ingntem efcre: son, itraius
vdr, frté quia a sprcibs variarum

nubium reflectr, ut accidit in ð son,
à monte, aut aliâ re sibi repellr:
vel quia repetito sit flammæ explo-
:nes vi explosionis ità agitantr guttu-
:lae in nubibus ut frequentr statim post
flammam ingemnet densissim imbr.
Fulgr e repentina coruscao
subtilissimè perstringens oclos quae nil
aliud e quam ipsa exhalaois accensio. Prius
solet videri fulgur quam audiatr
sonus, quod lux longè ocius se dif-
:fundat quam sonus: auditr tamen ali-
:quando tonitru, quando fulgur non vidr,

vl q̃d nubes inrpato impediant q̃idcq̃,
q̃omnis fulgr vdeatr; vl ea ē xhalaoĩ
raa, ut siñe flmmâ p̃ f̃mntaoẽ x-
plodanr. alqao i'jã fulgr p̃ete siñe
ullo fragore, q̃d ō ta xhalaoẽ,
qo accendntr, nao tribride e, q̃ q̃d
p̃rcle accnsa ō mclio coarctentr,
ſd libriu xitiu reperiant. p̃lerq̃q̃
ob nimiã dstaã f̃grẽ ō audimr.

Fulmen nil alid e, q̃ flmma
rap̃dsma x nubibs ad trã usq̃s
vibraa; q̃d ñ fulmen laide q̃enda
alqi xmorũnt, i mris vesle e; ẽd
gi ngral qã race hudi laiu tñ m-

bibus concrescat.

Fulminis stupendi admodum sunt effectus, aliquando enim vestes homo in quas incedit, adurit illaeso corpore, aliquando etiam ossa confringit; aliquando gladium in vagina liquefacit aut fringit vagina illaesa; aut etiam: hos effectus quidam effundunt in variam materiam ex qua fulmen constat, ita ut si materia fulminea crassior sit et mollior, vaginam adurat, gladio vero non noceat, quod nec poros ejus ingredi potest, nec partes duriores disparare; at vero, si sit subtilior vaginam intactam relin- permeat, deinde in gladii partes incurrit,

illasqz liqfacit. - Solent pulsari

campanas dum tonat, qia ad huncu-

:su tridenm, & prob naalis vis cam-

:panarum, ut nubes dispent, atqz

adeo flamma in nbibs enutriam:

hoc vo periculosu e pt, o pre turbu

ipsi campanili immnet, qd campan

sn, si altior sit, nube immnente

disrumpens facile fulmini probrat

aditum, ut in campanile corruat.

Qs 1o unde flammos, fulminis

motus?

R. a resilia aut ibrio aëris,

in qd incurrens motace directiois

reperitur: proinde repletio flammæ circumpolares partes assignatur, earumque nutant directiones.

Qs. 2º unde oritur circulus in herbâ, qui post fulmen detegi solet?

Circl. in herbâ dx e, ali, strati gramnis circa virentem in area herbâ uno circuli pede lat, diametrum habere solet 7 aut 8 uln. oritur ex fulmine quod in terrâ lapsum in gyrum quandoque agitur, herbamque sternit. — alii, circl. herbâ constat metô fertilius quod in areâ circli viget, videreque

effus proris, diu vi saliva ei fu-
:mne relctoriu hrba fillor crscit.

Art: 2do

Stla cadns, ignis
fatuus &c.

Stla cadns ē stat ex crssri ex-
:halaoe, & sulphreis prclis mtuo
occrsu in mdiâ rgioe accnsis prst-
tmgnio ostio & secae gigni slet,
unde ostae fiqns e. si hal, hi
in unu globu clgantr, sbto mcant
& xgnr: si late sparsi sint, flm-
:ma pabli si mau sqns vlt stla
decrrere vdu, vl cadre si xhlao ardns decdit,

Ignis fatu, nil alid e qp exhlaō

qeda pnguis & viscosa x lcis pro

pue uligosis & pngbs ellcta, qo

motu cntri accensa. hic ignis fu

gientes dr sqi, sqntes fugere; qpà

d tenuism, sit, ser mtu aëris agi

tai sqr, ità ut viator aëre propl

lns m ignis flui mtu detret. ide

vò ad lca palstria viatres ducre

censeta, qd decepti ad illud, tnqs ad

lumn accednles, in lca plstria de

veniant, ubi plrmqs ignes hudi

nscuntr. Si fiera cjs trabalis sit,

trabs dr; si pprbr erecta, ignis

pyramidalis; si in medio crassi draco volans; si saliat, capra saltans.

Mari quandoque apparent hi ignes sævinte procellâ, si unc, sit, Helena solet di; sin 2, castor & Pollux. Ex his signis conjiciunt Nautæ cito abituram procellam, sin dicunt ignis sti Helmi magnitudinem ptroni.

Lux seu aurora borealis est la crepusculi species quæ ex parte boreali hortis conspicitur: causa est, altera parte tum lux solis, quam nubes conglaciatæ reflectit, vel glacies maris in nubem reverberat.

altra accensa, & nil alid e proto

xhlaoes oleosas, sulphureas ac bi

tuminosas, qo sla agtaoe absqe

calore solis accendntr. - Hoc pheno

non ab antqis observand e cni qdoo

vesle vidm sit ide e mltbs in a-

ere pgnntbs, qos alqae visos fuisse

referunt.

Sectio 5a

Meteora Emphatica.

P meteora empca ilgms speg

qasda elluentes & nubbs qsi im

pressas, qles st. Iris, Halo, Parhe-

lion, &c. =

Art: 1mus

Iris

e arc, multiclor in nubibs

tud tm impress, qao sole lucente

pluvia decidit: arte fi pt agas

in aëre jctndo ope syringis, qo

gutti dilabntes Iride xhebunt

oclo in debito stu, rto solis & gut:

:lari elcao. Hnc apd oes in ossio

stn e fi hunc arcud pr 2fraoe

lucis solris in guttlis pluvio stil

:lntis. Hec mdo 1o fuse xplaa

e Iris ab Ant: de Dnis apostatâ

Spalatensi in L. de rad. visus & luc,

- Eandē methū pstea inuit Cesius
eā emndans quoad arcū exterē;
arc, n. 2us ē, exter, cujs dblres st
colres, & inter, qi mgs vvd, ē.

Arc, vō fit ā solis radiis in
pluviæ guttas stillantes ità decidnt,
ut ad oclū ipsè refringantr.
hoc: tn mltos ex pte guttæ oppā
reflecti, vl in alias ptes divrgre,
& sic ineffces.

Ut vō ilgatr qâ raoe fiat
iris, sit ejus explicaoem. Suppi,
Nol: 1o radiū lcis incdntē in
aqæ guttlā in eā refringi, ità ut

vl xeat in pte oppâ, vl ab eâ re-
-flectatr in alia guttlæ pte, ubi vl
xit, vl itrũ reflectr in alia pte.

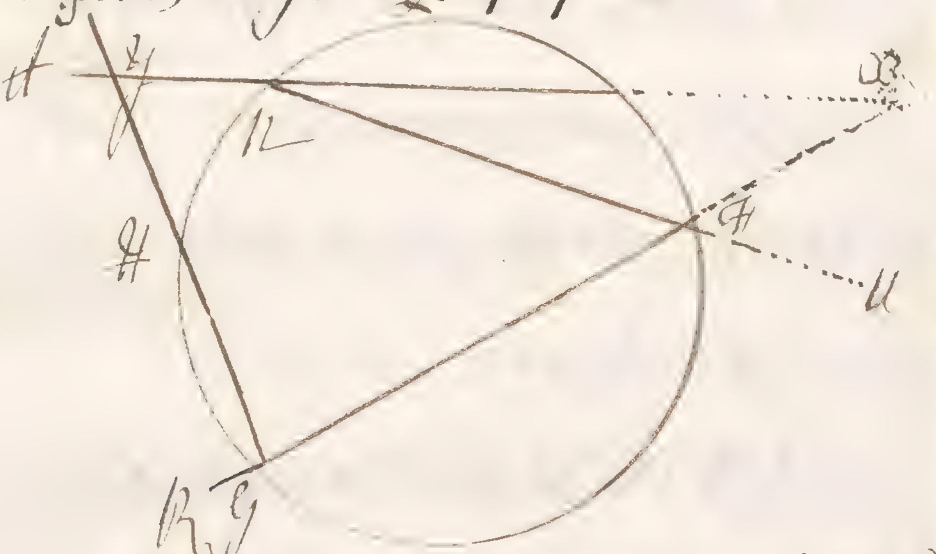
2° õ re in oibs radiis eandẽ re-
-frangblæ, i e, alios radios here
mjre, alios mnrẽ dispoẽ, ut i ira-
-sâ detorqeantr, in sbi incidiâ, sp-
-rã idẽ mdiu. ?

3° Radi here lmtes rfrngblaj
-te, i ẽ, anglu uniu qo mnr ee nql,
& aliu smr anglu qo mjr ee nql.
Prró sel ẽ sol ad Tropicos peruit,
dies fit alqd pus tepru augentr,
aut mnuuntr, ita anglru horu

q̃nas ſeparatiõ in lmtbs variatr; un-
-dè & cpsores radii in lmtbs emin-
-gant nec ō, qp in qàlbt altrá
in clnaoe. cmqp dvsi radii dvsos
heant lmtes, hnc tm angli, in qbs
cpsii emrgent, erunt dvsi, & rad.
qlbt ab invce sprai rtvas sos
cobres exhebunt.

Sit HFLG guttla aqæ, A rad.
incedns in pncto N, qi refingr ad
F, ibiqp vl exit p V, vl reflctr ad
G, ibiqp vl exit p R, vl 2o reflctr
ad H, ibiqp emrgns secat rad. in-
-cdnte in Y. ex ǒpulo cr rad. in

rad. mnis refrangibs, angl, mx, AxR ε 42°, 2', angls mnm, AyS ε 50° 57': in rad. mgs refrangiblbs angls mx, AxR ε 40° 17', angls mgnm, AyS ε 54° 7'.



Sit in O oclus spectatoris, & OD lia prlla Rad. solribs. Sit DOE, DOF, DOG, DOH, angli 40° 17'. 42° 2'. 50° 57'. 54° 7' rive: & hi angli ci cir-

cal, ad coe^{OE} volvantr, alii sis

latribs O E, O F, O G, O H descrent-
arcs, 2 A F B E & C H D G; sint E, F,
G, H sit guttlæ ubicnqȝ circa in spa-
tie concâ, q̄ descrbnt O E, O F, O G, O H,
& radii solibs S E, S F, S G, S H illum-
nentr, angls S E O, q sit æqlis anglo
P O E i e, 40° 17', erit angls mxs,
in qo radii mgs refrngbles p st
pst unā reflxioē ad oclū refrngi,
ac proin oes guttlæ in lcâ O E re-
millent cpiosis ad oclū rad. mgs
refrngbles, ac proin x illâ pte
snsbs refrent colrē violaceū. Eo-
dē mdo angls S F O c æqlis sit anglo
P O F, i e, 42° 2', erit mx, in q o

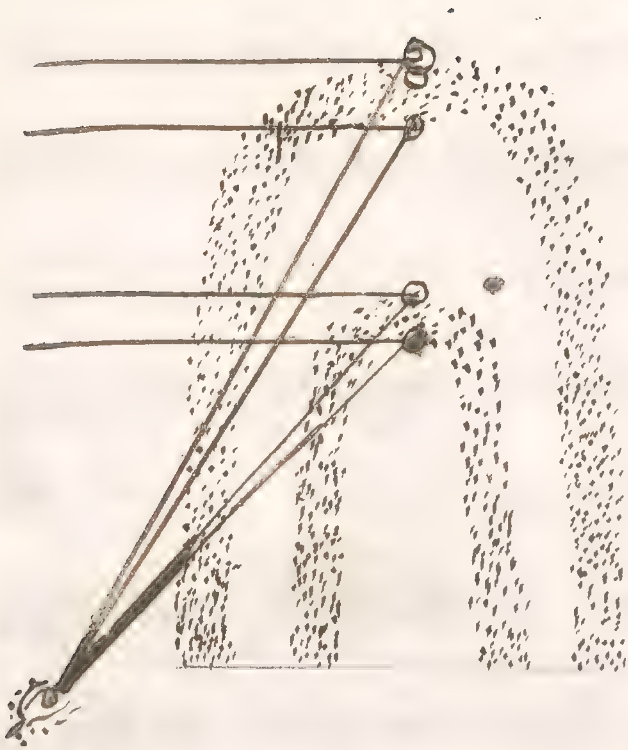
rad. minus refrangibiles prout post unā
reflexione emergere ex guttis, ac proin
illi rad. ipsi, ad oculū pervenient
ex guttis efficacibus in lineâ O H, & ex
illâ parte sensibus referent colorē ru-
-brū. Eâdē ratione radii, qui habent re-
-frangibilitatē mediocrē ipsi, emergent à
guttis inter E & H, sensibusque referent co-
-lores medios, prout radii cujus re-
-frangibilitas postulat, i e, in progressu
ab E ad H, seu ad interiori arcûs parte
ad exteriorē, 1º violaceū, 2º Indigo,
3º Cæruleū, 4º viridē, 5º flavū,
6º aurantiacū, 7º rubrū. ——— at ob

mixta lucis rubiū violaceus deb-
lis & ad purpureū inclinans videbr.

Dein angl SFO, ꝯ æqlis sit
anglo DOG, i e 50°-57', erit mnm,
angl in qo radii mis refrangbles
pst pst 2 reflxioes emrgre ex gutlis,
adeoq hi radii cpiosi, ad oclū p-
venient ex gutlis in lcā OG, snsbq
referent colrē rubrū: anglsq SKO
æqlis anglo DOK, i e, 54° 7', mn-
m erit in qo radii mgs refrnglas
perunt emrgre, unde cpsi, adoc-
lū pvenient ex lcā OK, snsbsq
referent colrē violaceū; gutlæq im

Qui hi colores intermedios referent, eo ordine, quo uniuscujusque coloris refrin-gibilitas postulat ab interiori arcûs parte ad exteriorem, 1° rubrum, 2° aurantiacum, 3° flavum, 4° viride, 5° caeruleum, 6° Indigo, 7° violaceum.

Porro quod dictum de his guttis, idem dici potest de omnibus aliis guttis effectis u-bicumque in istis speciebus concis.



Hinc vides 1o. arcum 2um separari, interiorem, qui magis vividus est, quia fit per unam reflexionem, et exteriorem, cujus colores sunt minus vividi, quia fit per 2 reflexiones, quarum singulae lucem debilitant.

2º colres in his arcubs ēe in ordne inverso, ità ut ruber sit ser vers spaō GF.

3º Iridē ser apparere in rgioē soli oppō. –

4º Toties nvā ɔspici Iridē, qties ocl ab unâ pte ad aliā ɔvertitr, qià colres in arcu ð oclo conū efficiant, cujs basis ē nubs in pluviā stillas, vrtx vò spctntis ocl; undè qiès ocli sits mutatr, tiès nv, foatr Con.

Art: 2us
Halo, Parhelion, Paraselene.

Halo, qd Latini coronā vcant,

ẽ crcl, qᵢ̀ cngit sidra, prorlū uò
Lunā. alqao corna hoc colraa
apprct, frmè ut iris, eamq; Hu-
-geni, & Newt. hi putant p luce
transeunte ē 2 fractioibs snè ullâ
reflexioe p grndnis globlos. sin
glbli hi ō sint pnts sphorci,
sd pariū ōplnai, lux satis fortis
erit, ad crnā crcà luce foardā
frè ad dstaā 26°, ità tn ut lucis
vigor sit mnuend, svè dstaa au-
-geatr svè mnuatr. hoc a crna
clraa erit, ē dbtā hrant globli
furā.

Parhelion, seu mentitus sol tu
gratur sed (?) ... o sol in quodam o-
-culo circa Nube congelata & polita
tingere sed una vl mce reflexi lu-
-minis opera depingit; quippe vibratis
à sole in congelatam Nubis superficie
radiis lumen per reflexione ad specta-
-tores in terra positos remissum circulum
illud efficere, in quo unus, vel plures
spurii soles apparent.

Nubes autem congelatur, ubi calore
soluta, mox repentino frigore corripitur,
& vel à vaporibus è terra ascendentibus è-

rumpentbs, vl à ventis fiti, im=
pellntbs in sblmi sustnetr.

Qmdmdm vò sol spuri, v in nu=
=be imprss, prhlii nnc donatr, ita
Lune imgo in nube depctâ para=
=selena vr.

Cosmographia

Pars 3ia

De Globo Terraqueo.

Sectio 1ma

De superficie terrae.

Art: 1us

De situ & figurâ Terrae.

Terra in cẽtro universi hujus sita ēē volunt Tychonici, negant Copernici: quidquid sit de hac re, illud certum videtur, argumenta tum ab Aristotelicis tum á Tychonicis allata posse facilimè dissolvi in hypothesi Copernicanâ: nec vicè ad immobilitatem

colorum distantia externas terræ partes nilo huiusmodi; unde incolæ terræ servidebuntur sibi in medio oborio tantopere distantium elevari.

De figurâ globi terrei in varias sententias varii philosophi adierunt; alii enim figuram ejus cylindricam, alii concavam, alii disco similem, alii denique in immenso planè fundo latè protensam putarunt: Aristoteles olim aliique peritiores terram sphæricam esse docebant, & quidem eam latè satis sphæricam certum videtur. cum enim in civis, quo altitudinem 15° orientalior est, sol visibilis omnes (si eandem poli elevationem habeat)

unâ h. citi, oriunr & ocdunt quo

-dli, ut ex eclpsbs Lunæ sul utrolig

ōspouis ōstat; qᵒ si ocdlbs 2ª ncti

h. ōgant, orialbs h. nctis 3ª, ōdtr

sul acdent. r. ⊃ ⊃ Qᵒ si plna

eet, popli acdles eundē hrē horam

ac oriales, ac proin sol utrisq

sul orirēt & ocdret: si cva aut

gibbsa eet, ocdlbs pplis sol orirēt

prisq oriales; vallieu r ptes oc

-dles citi, illstranz à sole, qz orib

Itē visi polō rctà euntbs sb

eodē mrdiāo, pol, ōspcu, eâ ser

proportioe assrgit, qâ iter promovet

eadē proꝛtioē pol, occlt, deprmtr.
hnc stlle breales plres st ppuè ap-
priois in Germniâ, qp in Italiâ,
in Italiâ qp in Africâ. australes
ā stlle plres ser occltæ st Germnis,
qp Italis, Italis qp Afris: r. ⊃ ⊃
Qd si plna eet, gentes ⁊triales
eundē hrte herent ac australes.
ac proin utrsqp eadē eet ejdē po-
li Elvao sprâ eandē tre plnitiē.
si cva eet aut gibbsa, ppplis aus-
ralbs plres stlle ⁊triales ppuè
apprerent, qp ipsis ⁊trialbs; plres
stlle australes ppplis australbs

deliteſcerent: ſed in valle poſt, pluſ
ſtlas cernit terriales in parte vallis
Auſtrali, quam in terriali conſlut.

Terra vi late ſphaera eſſe conſtat; at
ſtricte ſphaera non eſſe clare, ex iis, quae in
Phyſica de vi gravitatis in terrae ſpecie
diximus, ut quod conſtabit magis ex dicendis.

Art: 2.

De terrae dimenſionibus.

Ut de antiquorum menſuris Eratoſ-
thenis, Poſſidonii &c. aut in Snellii
recentioris nihil dicamus, ſuadent accura-
tae Picharti, Caſsini, & Norwoodi
obſervationes. —

Pichart, pst mltorū trnglorū
soluoē arcū 1° 22' 55" inr ambianā
& malvoisinā metit, ē, undè inon-
-it arcū uni, ° hexapetarū paris-
-ìarū 57060: undè ambt, trē, si sp-
-hc, qrrorsū ect, foret 123249600 p.
parsiensiū.

Fd ○ error aut in fabrcā insmo-
-rū, aut in obsvndis lcorū ladnbs
fclè obrepre pet, idrò jussu rgio
Cassn, mnsrā trē p mjra lcorū in-
-vlla aggrss, ē, ac sbindè p dslaā
inr obsvaorū rgiū Parsiense &
villā Coliure in Rossillon, & ladnū

dra 6° 18' invenit 1° ee hexapedas 57:
:292, propé ut Norwood, anté invenerat,
hic n circá an. 1635 mensurando distan
pedu Londinensiu 905751 Londinu inr
& Eboracu, & observando distan latitudinu
2° 28' colligit mensura 1° ee pedu Lon-
:dinensiu 367196, i e, hexapedaru Pa-
:risiensiu 57300.

c x Istis mensuris vos, sibi e las.
invenisse nulla ee diversa mensura graduum p
ambitu terrae, sed alios ee majores, alios
minores, & quidem ita ut minuerentur vers
polos, augerentur vero vers aequatorem

hexapdis pls mnis 72, xinte trâ sph-
roide oblngâ, cujs ptes st ad polos
altsmæ.

at casno assri ō pum, qpā, ut
arguatr clvis., hnc cra oa ad polos
tro frent leviora qp ad eqaore, &
aldo tro ad polos spraret ejs alne
ad eqaore mil. frē 95, & pndla iso-
phrona lngra forent sb eqre, qp
in obsvaorio rgiō Psiensi xcessio
semissis dig. crctr, qbs oibs xpria
ōvariatr.

Addē qd acmoru in rgioēs brrales
nupr mssoru obsvaoes ffrant nstrau

intia, vz e latres ee lngres vs; Polos,

breviores vs; aeqre: ro sb circlo Polari

inventi, e 1mo un, e 3nere hexpedas 57-

437; unde probli, vdr tra ee spheroi

:da prolata, altie sb aeqre & depressa

sb polis, ita ut xess, alnis tre ad

aeqre supra alne ejs ad Polos sit, ut

31 7/12. hnc in 3putat mxa tre semidi

:amr ee ped. Paris. 19767630, minima

ped. 19609820, mediocris ped. 19688-

:725 qp pe.

Ds. Richart invenit e minres vs;

Borea qm lasn vs; austra: 2o

crescunt vs Borea.

R. D. ars. errore certé N. ō ē du-
bitandū quin Dich. obsvaoibs insit error;
neqꝫ n tm dscren ēē pt in o fre ǯqui
quo sup. ex obsvaoibs Casni & Dich.: c
alqd ee dscrnis, id tn o incrnto vas
Polos x antedictis appret.

Prro c Galliâ sit fre mdia inr
Polid & aqre, hinc mnsra Casni
tnqꝫ mdiocris heri pt. scdò 1° am-
plius tustris ǯnebit ped. Pars. 343752,
i ē, Leucas $28\frac{323}{500}$ qarū unaqqꝫ ǯstat
hxpdis 2000. simr ǯnebit ped. Lond.
366669, i ē, mil. angl. $69\frac{783}{1760}$, qorū
sgla ǯstat ped. 5280. Hnc alqas

dimiōs felè inveniès.

Art: 3ius

Globi Terraquei

divioes.

Glb, terstris in aqp & tra dvd. –
Tro species immnsis cavails abn-
:dat, qarid mxo ōnent oceanid &
maria, alio lac, & flmna, alio dnqp
vcuo st, & carno dnr & valles. un-
:de species Glbi e ptd tra arda,
ptd vò aqa. species arda in tra
frimd seu ōncnte, & inslas dvd. –
Tro frime 4 vlgò nrantr. 1° mund,
vetr, – 2° mund, nov, 3° Tra arctica,

-4º Tra antarctica seu australis. —

Mund, Vet, Europa cōnet, Asia &

Africa. Africa di pt ingns Peninsla,

qua Asiæ cōjngr pr angstu trs spaũ

crctr 40 mil. Ger. latu, pr qd Reges

Oli Ægyptii æ mari rubro in Medi-

:traneo via aperuerunt. - Mund, no,

Amrca cōnet, & Australe & 7triale,

qa fre cōjnguntr prope Panaman.

De trá arctcá & antrctcá paride ē

crti, an prs Amrcæ brealis sit Asiæ

cōgua nenc incrtu m ē, illd tn crtu

ē meltos ee agressos, nemne vo in-

:venisse Greenlandia, & nova Zemblia

ullo mri sejngi.

Ut dierũ inęqas cgnscatr. tra in clmata dsbuitr p circlos eqri pllos, ita ut ubi dies unâ hrâ augetr in Solstio estivo, ibi novũ incipiat clma, & sic usq ad Pbres p medias hras nrantr 24: at sb circl plarb, dies lngsms ē 24 h., & hinc ad Polos p mnses nrantr.

antiqi geogrhi pauca statuerunt clmaa, nqz illa desmebant ab eqre, sd alii à 9no ē ladnis, alii à 4o 15': sd dz isulite geogrhos.

— —

Art: 4us

De montibs & vallbs.

mntiu valliumqe verdo ō tm ornamnto ē tro, ād m cmmdo; fru-ges n qbs valles abndant, à rivlis, qi x mntbs fluunt, irrigantr. dein ad nubiu & pluviariu foao mntes plrmiu ïferunt. Bestiis, avibq imò & hoibs sepè recessu secuiu probent. huc accedit qd mntes sanad sepè restaurent eoru qbs vlles st noxiè, & vec versâ: ut nil de fodinis

metallorum dicamus, quae fcli, & scri, in
montibus eruuntur.

At unde tota species terris inae-
-quas? an quia providentia Creatoris eo
modo res ab initio primum disposuit,
quo cruris suis ultores fore cognovit? –
an postea terra in proprio plano prostrata
disrupta est, ut in aliis locis essent
montes, in aliis vero alvei aquis re-
-cipiendis idonei, cum jussit Deus, ut congre-
-garentur aquae in locum unum? res est plane
incerta. iis vero, qui nullos fuisse montes
ante diluvium contendunt, comparare videtur

S. sacra Gen.7 v. 19. ubi dr, "& aqæ
prævaluerunt nimis sup tra, opertiq3
st oes mntes xcelsi.

Qui m pt an montes pst-dlv-
:iai iidē sint ē ante-dluiais. Wood-
:wardo vdr ee dvrsos, tota qppè tra
aqara vi tubaa fuisse putat, ut oa
sul pmscerent; pstea cra pòraoe
se grvais sbsidisse, vriaq straa
effcisse aqis adhc oa oprientbs;
strais his trdē præruptis fctas ee
ingntes cvaes, in qas aqæ rece-
:dent, mntbs ibi relictis, ubi straa

illa prorupta ō pntis obsidebant,
id mtuā inclnaoe inoed sustetabnt

Montis altdo pperlis sluoe Tri:
:gocā, aut m ope Barometri; qā
mori, descit p 10ª pte pol. pó
:sglis 9 ped. ascus montis. inrd de:
:bet ali, obsvaor in pede montis
mnre ē alio barmro ut cps obsvct
mtaods.

Mntes alnc celbriores st andes
in amrcā mdiali à Panamá
ad fretū usq magellanicū xnsi :lt
Pic, Tenariffe inr Canarias crctr 2
mil. ½ alt; Pic, S. Georgii inr azores

ejusdē spnē alnis &c. — hnc videri ē
mntes altsmos nlo mdo offcre sphcæ
globi traqei fure; sit n̄ mons alts-
-m, 3 mil. & tra smdiam. crctr 4000
mnr erit proztio qp ut 1 ad 1000. —
restat ut de montbs ignivomis vlgò
vulcanis alqd̄ dcams. inr hos præ-
-spui st ætna in Siciliâ, qæ an. 1536
crrs ad 2000 Leucas projecssedr.
Hecla in Icelandiâ qæ ingntes
m̄ laides ejicit. Vesuvi, in campniâ
ō prel à Neapli, ci xitiū sæpè
mnitatr. — —

nqq tn hi mntes ttlae sū crent;
hi n̄ p ttes aptras ejci pent ig:
:nes sbtrnei, rgioes qo maâ sul:
:phreâ abndant, frpuis mtts suc:
:csso ō pent coli. de câ vò harū
eruptioū agetr in Sec. sqnti.

Sec: 2da

De ptts Terræ

introrbs.

Tellus in vrias strata ordne
pulchrrmo digesta disbuitr. 1o ceu
relqorū oīū integumentū ē tra sbngra,
pngis & mollior, qo vegetabliū oīū aū
ē, ō qdm ejdē ubiqq vrtuis, sd in

aliis l'cis mgs salbs impregnatr, aut

aliis cis adjutrcbs abndat, aut pri=

:vatr. — 2ª ē lutū, seu trastublés

ǰstns & qsi spngiosa. – 3tiª ē argilla

cujs spees st creta, marga &c. —

4ª ē sabulū, qd m in intro spcie

iivonitr. ċ ō tm unū cujsq speei

stratū unq iivontr, īd alqao in pu:

:teis effodiendis straa bis aut ter ejdē

speei iivoniuntr in dvrsis alnbs. – ;

Pst hoc veniunt metalla, mnrlia

&c, sgla pbrmq ǰxā raoē pprie gro:

:ais, ō tn sep, ut testis ē Leigh in

historiā naali Lancastriæ, & xpriēs

Derham. imò metallrū grana ſæpè
in aliqis strais reperiuntr.

Art: 1us

De mineralibs.

Nitrū, seu Sal-petre ē sal spiri
aëris impregna, qbs vlatlis evadit.
invntr in murorū ruderbs, & propè
in lcis urinosis & humidis, qâ ibi
aër fcle ↄdnsatr, & laidbs adhæscit,
ô ē ∞ prîâ naâ inflmblis, ↄd tū tm
ↄ fulgrsis & sulphreis altris maes,
putà crbois prclis ↄmsceti; eas n
prclas nitrū de se volatle eas fait
& elvat, flmmamqꝫ auget. Sal-petre

rentiorw à nitro veterw discrepare

vdr, sm tn promscuè usurpante ho vces.

Alumen

ē sal mnralis à naā xalzans,

alid dr zoaw, alid alumen Rupis.

Dr horw vrtbs & usu lege Lemery.

Vitriolw

ē mnrale ȝpw ex ptbs trreis,

sulphreis, salnis & metalleis. alid

ē albw, alid viride, alid coruleu,

alid dnqz rubrw.

Arsenicw

ē sal mnralis ex sulphre &

sale caustco ȝstns. - 3x- ē, alid albw,

q̄d dr arsinicū; – alīd flvū seu auri-
-pigmntū; alīd rubrū seu regale,
seu sandrca. oa sl venena mrt-
-fra, si intrius smantr, ni stū olēū
absorbeatr sffns ād salē hunc a-
-cutū in vsceribs hebitandū.

Sal armoniacus
seu ammoniacus

Vetrū erat volatlis urne Came-
-lorū & aliorū aalīū in arenosis dy-
-dīe desertis ardre solis sblmas. Rā-
-rae & q̄o in lco ōppnatr sal armni-
-ac, recntiorū ō satis ōstat, inqt
Lemery. vlgō crditr fcts ex ~~ur~~ urnā,

sale mrno & fulgne caminorū.

Succinū seu

Electrū.

ē succ, qddā tr̃e, inventꝰ propꝗuè in littrbs mris Baltci in Prusiā ducali. pst affrctū leviora crā ad se altrhit, frtè vi atmo effluvi-orū suorū.

Minrlia a metllis p hoc dsgi pst, qd mtlla sint ligablia & duc-tlia, minrlia vò, lct frdi iñdiū pint, ō trn st ductlia.

Art: 2us

Magnes

ē maa mtlca aut lapis mi:
:nrlis ferrugne, ut plrmū nigro,
iñr ferri fodnas inontr.

virtutes ejs propuè celbrae, st,

1° *vis drctrix*, qâ se, si in pelvi
aqâ plenâ fluctuet, ad mrdianū
lci ōppnet, & polū suū ausrlē vis;
brealē lro polō ōvrtit.

2° *vis attrva*, qâ ferrū &c, at:
:trahit, & qdm vi mjri si lamnis
calybeis ad utrumq polū sit arma:

forte quia profluvia magnetica poros calybis majores sive vel magis politos reperiunt, ita ut motum, adeoque vires, plurimum augeant; unde si charta interponatur, non magis attrahit magnes, quam si arma, et cet. item magnes unum alterum, si polo ejus contrario respiciat, attrahit: contra vero, si polo ejusdem nominis respiciat, repellit.

3° vis communicatrix, si ferrum acus ferrea in qualibet magnetis parte affricetur, vel si aliquot dies ei adjaceat, eandem cum magnete ad boream directionem habet, eandemque vim alia ferra attrahendi.

.11 r plres acicli ȝgui adjngantr,
oes á mgnee vlt ctrlo pderunt,
maa n̄ mgntca in fro aptos
poros vl repprit, vl efcit. mli, tn
calybi qp fro vrtud sd coiat. —

Ut fiat ac, mgntca, smatr ac,
calybia rcta, polita & in eqbrio su-
-pnsa, ō nmiud brevis, ut snsblr v-
-gatr, ne ità lnga, ut spha aivaj
mgnetis ci applcatr, accdat. ut
polid boreale respciat, applcetr
mrdioali mgnctis polo, & in eo à
mdio sui ad xtmu fricctr. xtmas
hec tota vrtud recpict, & Borea

aspciet: sin polo appo aplcetr, austrū respciet. fugit altri, acūs (uti ipsi, mgnetis polū) cgnri; si ea deblōr sit, altri, polū op=:pū sctabitr. si pstqp in uno polo affrcaa fuerit, in altro fricetr, to=:ta vrtūe sā amttet.

Ps acūs ō ōtcta ōstruitr gvior, ut ac in eqbrio mneat; si n antè ōtctū in eqbrio fuerit, pst ps ō=:tcta ad hzte deflcetr, in Italiā qdm ad latne 40°, ita ut

71° hoc inclinao in eodd lco variari
vdr, & ō ɔcordent expro. sc variat
m dclnao: ac, n nautca polū
beale raró ad amssi respcit;
sd sepē alqt° ad orie vl occd de-
-clnat.

Batvi nāte, qi iter p Borēa ad
Sinenses tentaverunt, exprti stacū
propē polū nllo here dclnaoē.

putat Brsi, lū suū Elnūseu
maū striaū ē polis tre erumpre,
ità tn ut stria illa, qo x polo bo-
-reali exeunt, ō eodem mōō intorto

sint ac illo, qo è polo australi è-
-rumpunt, id dorsū prorsi, rase; & qo
effr ut qo ab uno tre polo xeunt,
p eundē remeare negant, id ccrutu
qodā ād poliū oppū ob aëris cr-
-cmfsc rstriā & ŏnuū slis mae stri-
-ae ex rgioe colsti ād tre propè
polū afflatū rēdire ŏpellante. —
— At incrdble vdr, tā eas mae stri-
-ae cocleas, qp canales seu tublos
in qbs mventr, pura sā ŏstntr
retnere, nc coclearū striās pro-
-mnentes ŏnuo affrctu abradi.

dein qōō striæ illæ, seu prominentes
coclearium p̄tes tā aptè intrà recep-
tacula striata, in canalibus excavata
admittuntur, ut neque hæreant, nec
coclearium aliarum succentium serie
remorentur: imò ō m nri fè celera-
murantur, q̄s si recto mu sinè ullâ
circà suū axē ḡversione abriperentur?
Qrè meliꝰ sperit Hugeni, profluvia
ōnente ex uno tm tre polo p. rectas
axi illi, parallas erumpentia unum
è magnetis polis penetrare, ac p.
rectas axi magnetis parallas progru-

p oppitō polō īgredi, cmq felis ea
proflvia p mgntis, qp p aëris
meat, mvrantr, vitē alqē crcà
mgnem se effcere, ut uno tm polo
ipsis vibrant, & æ oppō tm erum-
-pant; ideò qià mgnetis fibrillæ
seu villi inrà ipsis meaus, ut in
pnno serico, qd velutū vcant, æ-
-ntes àl proflviis mgnticis in unā
ptē deprmantr; d tn si proflvia
à polo oppo fluerent, villi ercti
mtū impedirent. hnc in istâ
hypsi altr ē polo egressūs, altr

ingressûs, utr tr tro pol: sit ingr-
:sus aut egress, ignoramus. —

Sponams tr proflux, ꝑ polo
tro austral ingredi; patet. illa, & ꝑ
polo boreal exierint, protrudenda ee
mu̇ iario ꝑ specie tro, à Boreâ ad
austrū; & hinc pol. magnetis, qui in
tro visceribs austrū respiciebat, in ejs
de specie boream respiciet; profluvia i
magnē sex propellunt,

hac virgo ferro, qo dum ipsi tro ad perpendclm insistunt, vi mgncâ induuntr, qâ ad mndi polos se dirigunt.

Ds. Si drctio mgnetis à proflui unirct, ac mgnca ad mndi cardines ser dirgeretr, an hoc ꝯ fit: r.

R. Dif. Maj. ad mndi crdnes pro. ce. cN. Sn. e. maa mgnca ad polu q. polo trnsiens. ps spcie terstre ō trād recta, ad vbqa het, & qom oia virtus in locis ppr proflurâ e podni aliisq lcis salts erumpnthâ, qbs

ejus mtu turbatur.

Art: 3ius

De Tre-mtbus, ignibus & vaporibus sbterneis.

Tremtus, ignesque sbterneo oriuntur, 1º si lapides è smo cvaro sbterneorum dilapsi in exhalades sulphureas & nitrosas ignem excitent. 2º si acidi & oleosi spirus cal..e sbterneo evch sul fermesceantur; ser n. flmad pariunt, ut ostendit chymia. 3º si sulphuris & ferri ples fermesceantur, qia tu incendntur; hinc post tremt, & erup:tioes igneas sulpher copsm in tra

spccie jacet, & in rimis, qas igni egit, visitr scoria. —

Obs. acida & alklna in tro vs-ocls pssiD lalre; rD sulphr, alumn & vitriolw ibi grantr, & mllis in lcis fntes acidi scaturiunt. Jstat a acida olcosis pmixta frmentscre & flma Jcpre; sulphr prclis fri admixtu, & aqá Jbactu incalscit, & in flmmas erumpit, qa sulphris acida fri poros sbeuntia, & ab iis sope repulsa ptlsqp oleosis cöercita mu vhnti agitatr, ignemqp creant.

si ĩn mao ĩnſmblis maſſa in
cavnis tre ab alto decidat, vl si
ſpri in tle ĩgerie dilabatr, vl si
venti hudi vapres, & exhalaões ex
atmá in tre visceza deprtaverint,
aut ẽ fodnis saliu, sulphris, fri,
vitrioli everrerint, hác agtaoe
flmas ĩcipiunt. ignis ã vapres
ac aërem permiu, rarfait, & dila:
:tat: hnc tell, atller, rursũmq; so
sidre dpmr, si ignis dffu pbli,
vl in mjs spaco dffsus vĩ amttat,
cessat tramots, sin ignis violntior
fuerit, tels resistndo impar, mgno

tiam ~~tra~~ aperitur, & montes urbesque
omnesque abdibet: sæpè in ubi dehiscit,
ignis erupit.

Tunc in tronitibus mugit, &
fragores sæpè audiuntur, aquæ
maris intumescunt, calent, sul-
:phureumque odore imbibunt; terra pul-
verem, cineres, vapores suffocantes,
imò ingentia saxa ad aliquot leucas
quandoque ejaculatur, quibus dies per plures
provincias obtenebrescit.

Vapores obtinere aliquando à ventis
è terræ superficie in cavernas vacuasque

fodnas aspirantes: sæpe v̄n odore
floris trifolii regionis istius retinent,
ut in Pico Derbiensi accidere solet;
vapores tandem alii sunt fulminantes,
qui nitro & sulphure constant, uti
plerisque pyrites. hos præsagit candela
coeruleo colore ab iis tincta; in
cavernis fodinis propriè deerrant,
& admotâ candelâ flammam concipiunt,
& cum explosione vel tonitru vel pluvis
pyr, ingentes edunt strages, & obvia
quæque evertunt alii, vulgò suffocantes
dicti, in aliis fodinis frequentes sunt,

holbs, spirandi difflad creant, vosque

algao sufficant, vl, si inluerint,

paralyticos reddunt, ante hos cre-

dlaru flma rotnda fit, & minr, do-

-nc paulad ægate.

Qs. unde provniat calr

obtinemus?

Rel Woodward, e alius qbsda

igne centrale, in mdio tr8 admn-

-da ee. at sats pabli ille reperre

o pct. dein ignis ppuo augete,

unde jmprde tra absmpsisset.

Dico iz insbles ignis prclas

in vscrbs tras ſpirsas labre, & mad
obstbe aglãoe igne ubiqs sope
oepre; mt, n & fractio ex ptbs sub-
-phreis igne producunt qi ubiqs
ad vsios nas effus presto sit.

Sectio 2ª

De Aqeá Globi pte

Art: 1us

De mari, ejusqs

salsne.

mria plsqs dmid globi tra-
-qei speciem ocpant, & si nil de lis
incognitis deams. ocean, 4x re:

Paciſc, atlantc, æthiopc, C qs

ad oriẽ. Indc, & Borealis.

Ocean, ẽ ingns aqaru recptclm,

qas vn torũ ac cabris opeſt or-

-be dsbuit, ut sint oīs vgtaois

vc vhiclm & ppriũ ubiqȝ presto,

ictpē Vniũ ad oē ſte nao uiũ na-

-aiũ. —

Mria lngē profndra st prpē

polos, qȝ crca aqre: illa nsqȝ

3 mil. alnd ſprare dvant ōnlix

Bohdũ jōtu; vcũ hoc de melis

mltis Ocęai ptbs gтis oio. Dnr.

Canalis britt nc, propè litt⁹
16, in mdio forte, 50, & in algb
lcis 62 hxapdis alt⁹ ē. Oceaus
atlnte⁹ gallia iũq & hibznia 80,
paulò ultri, vrs⁹ Hispania &
amrcā 120, 140 vc hexpdis pfnd,

ne tnta aqarū moles inrtiâ
putsceret, Ds eā salsne donvit,
sal ā propè mris sprciē sblt
ē ac tnuior, ideoq acutior & mgs
acid⁹; in fndo crssior. 2 aqǣ
mrinǣ libræ ad mimū dant 1 saly

·lis, uncia, in fundo alquo plr unde
32a. toti. mris p. sale ꝯstat.

Putat omni salsnē a montibꝫ
& fodinis salinis in fundo mris.
a fluctibꝫ pppuo abrasis, oiri.
vid tota infrior & latralis mris
species, & si ubiqꝫ sale ꝯstaret,
ō e toti mris ps 1000a, qōo vo
pte ejs 32a sale ꝯddre pt.

Volunt alii ꝯ Halleio aquas p
bro poros sales tastres secd in
mre advhre, cujs salsnē in dies
augri autumant, hncqꝫ lacꝫ oes

qi xiu nlw hent, salsos ee aiunt, cudi 4 vl 5 in orbe nrante:- 1o. mre Caspiu,- 2o mre mortuu, seu lc asphaltites, 3o lc mexi:-co, 4o Toticaca, in Peruvia, & qd d illa p canale sbo crdr beu:-caru ōgrge Paria. —> & sc me:-ia ante creaōe xtisse fatndu cuj ut hunc, qe jm hent, salsnis grau obtnerent, d inra secl snsblr ō augeate lorid salso.. unde auc:-tres hi vl preadamite st, vl Deiste & de scrip. s. pari solleti,

Itaqp ptr, dendiu vbi Deus sct
tris sales in creaoe indidit, m
oceao imnaa tribsse salsne. salij
a hys cruoe & dmna p pluvias
evctas, qdni mre repret x aqa-
:iu glutne, aliisqp cribs aqe imatys
Ds. Rupes qda in mri tota
sale cstant, ut insla ingra bz-
:muz in peto Persco: r x saliis
rupbs & fodnis provnie pt mis
salsdo.

R. rupes illas x salid mrnaw
ab aqis secretoriu collvie gentas

vðri; ste totw-mro salsu reddre
ō pst: 1º ñ ǭstat ras ee ad mðw
raras; dein tota maris spacias,
m̄si sale ǭstret, ad hunc effw o
sfret, crtè mri ingitw ē suw glutr
qidni & sal hurc glutni arctsmè
allga,? bitumn ñ goddā sales
agis mris ità ǭglutnat, ut vx
exprgentr; alhàs vñ sales oes,
utpè gravres, imu petrent.

aqe marnæ à sole sblaæ sa-
-le fere in ipso mri deserunt,
& in lngo p̄ nubes trctu mo

sale volatili expurgatur. in chy-
micorum Alembico à sale fixo,
s tn à volatili sparari pst.

Art. 2dus

De Æstu marino.

Æstus ē motus quo mare intra 24 h.
49'. bis intumescit; quo aquarum insur-
gentium motus fluxus dr; bis detumescit,
& aquæ subsidentis refluxus dr. mare 6 h.
ferè fluit, & in summo æstu aqua manet, imò
in 7trione 15' 20' vel 30' velut in æquilibrio
sublata manet, dnc vctâ priori ordine
6 ferè h. refluit.

Plinius & alii è veteribus æstum

in sole & Luna respondit: eadem enim Lunae
effectum esse agnoscunt omnes, quod patet. ex
magno aestus cum Lunae motu consensu; cons-
:tat enim quotidie sero retardatur, sicut & Luna
antequam ad eundem meridianum postridie re-
:vertitur. Hinc in quo tempore Luna a terra
distat, vel ab aequatore declinat, eo minores
sunt aestus. imo. omni Lunae motui aestus ipse
obsequitur, ut in plurimis litoribus observa-
:runt Astronomi: ideo a tota multitudine in-
-fertur Lunam maris aestum moderari.

Qu. Quomodo Luna sit aestuum causa?

Resp. Carthesius, terram per Lunae pressionem
a loco suo aliquantulum dimoveri:

Ad. Dnus Barlow Lund ee ds-
tum ca p hoc, qd ethrea madine
se & tra incepta proia sâ adeo
coardet, ut aqe qbs drcte immnet,
infrâ situ sw radle deprimatr,
adeoqe p undlaods in de pte dif-
fundantr. & hnc dstu vrs polos
qcrunt. aqe vo prope polos Elvae
ptdre so relabntes oqpe vrs reflu-
unt. — at d mdiu illo in qo mo-
vnr, plnto, rarsmo sit, vz 100000s
aere rari, & 600000000es aqatni
restat, qo restia o snsblo retrdret

mu plntar. 10000 an. spco, ō pt

ĵcpi qōō maa hoc. ita p celre

trnstu Lune coarctari pit, ut

effu hunc in agis prucat, tstant

m qi sb Zonâ trrdâ navgarunt

se obsvasse agas meis tu mgs in-

-flari, ō Luna in mrdiao vrsatr,

ō tn in illâ sntiâ dbret aga sba

dprmi. ———

Q. ūr ō crewī bnè æplri p at-

-traoe Lno? ———

Kepiler, jmdudu vd hanc ee a-

-liûs, ea suspca, e. qua jxa eu

si tra aqas sas ad se ō attrhret,

aqe ocs oceai assrgrent, & in Lu-
na refndrentr; spha n attraois
Lnaris ad tra ptngit, aqas qs
attollit. hec illa ijctra abnde
cfriat p theoria ducta x ppiis
grvais uxlis.

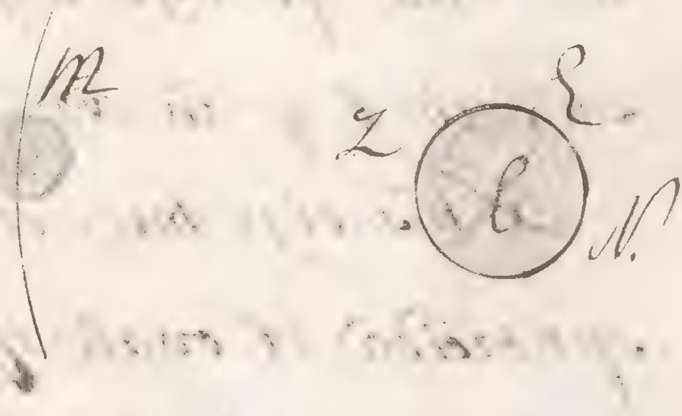
Obs. Qd sol eosdem in aqs re-
cprcos mts prucit, qos Lna, sd
lnge mnres. Qia qvs sol 1000000s
supret mole & tra & Lna, ta im-
mnsa tn e ejs a tra dstaa ut
tra imdiamr e ra nla proprtioe
heat. & prea vis attraois solris

fri oqe agit in oes tre ptes. hnc
est, illi sprai ē ẽsdrantr, sd ē
aliis ẽfrontr.—

D² Resp. Dia dno attraō rā
raō decrescet, qā augetr grudo=
:taō: r ubi ppprlis ē, scil: in ze=
:nth ibi agas sbas frti, attrhit,
qp venres hrti, & 4ā pte oī ds=
:tntes: r aqō illo, qbs pprbr in=
:cmbit, mgs grotntes vrs, dna frunt
briones, adsoqp intmscunt + p aqam
cpiā ibidē ab olis ptbs mjri gr=
:vae prssis affluentē, scil: ab
hrte. ps vō oppa, utpe à dnā

aemlsma ou mamè gravabit versù
Lna, adeòq aqa m. ex illâ pte, ex-
unt Litores, & attollentr aqis ab
hrte refluentbs.

Ut hoc meli, ilgantr, sit m
Lna, E Tra; C centro tro, Z locus Lno
in Zenth, N nadir.



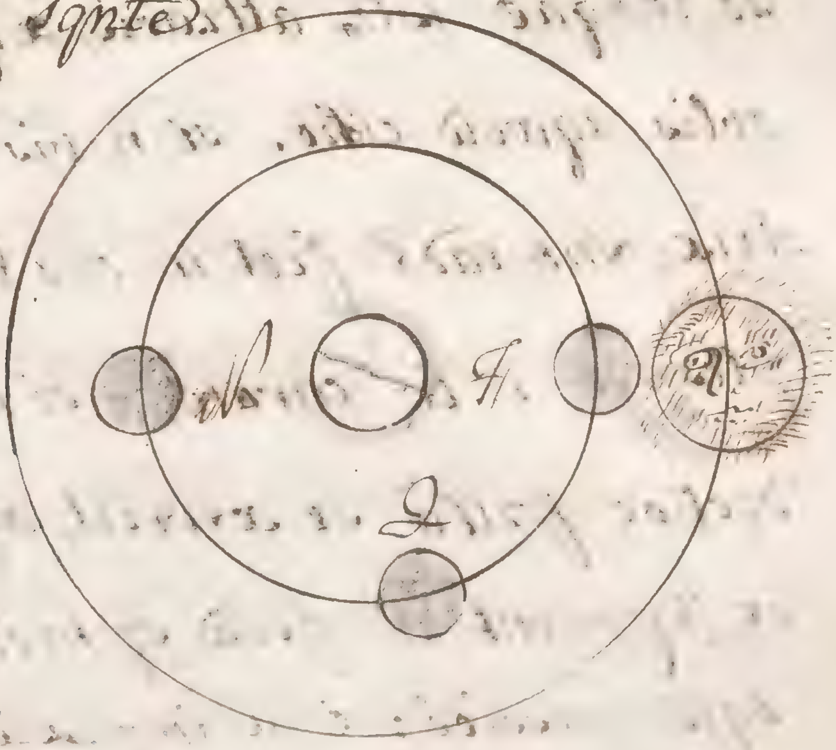
Ex hac hypsi sqr qd aqa in Z
propr ngrôr Lno mgs à Lnâ attrahatr
qr centro tro C, illd m mgs qaqa

in cr. hnc vis aqe in z, mtu grava-
-jarie tndntis in Lnā, ē oglis po-
-ni gravai in z sprā c.— & smi
aqa in cr. ẽ mnis attrhatr vrsū
Lnā qp cnrū c, eo mnis ipmctr,
& lenti, -sqetr tendiā gravais
vrsū Lnā, qo mjr ē gravao vrsū
Lnā in c, qp in cr.

x his clgr mre se in fiurā
sphoiidā, vl ovalē effigre, cujs dia-
-amr erit lngior lrā ductā p cnrū
Lnæ & tre, brvior vō hanc secalt
ad angls rctu.

Lna ā sct sotu su mutat dū

qtidie circa trã rotatu, ita & ovalis hoc a quarto cælo sub se ejus transitu excitatu. Unde toties fluunt, quoties Luna mediantem cælum pertransit, sive arcum secundo infra, sive supra terra. Toti vò refluunt ꝙ horizontis punctum orientale vel occidentale pertransit. atque in hora sequenti.



Cu̅ eorum in ... eodem pre-
ssiant & compri. sint, hinc fit ut sibi
invicem succedant ab unaquaque mediaci
ad distantiam 12h, adeoque bis quotidie
exprimant, quia fertur suo diurno ob
sequente.

Nota: vis est de re attractione,
sed inaequali istius attractionis, ex qua pro
ovlis aquarum ceteroquin. si n vis attrac-
trix, suo eadem fieret in omnes tres
partes, quae est in circum, & si in eadem
directione pellam se exerceret, aqua sed
se componerent in suam sphaeram propri
aequale pressione: o a impressio at=

attraois lunaris dirgatr vrs, tra
cnriu, & eo fortior sit qo propriores
sint ptes attrahendo, & m obqius
agat in colmnas lateales sb hzte,
eas e aqas obre in sphaeroide ob-
longa ifluere. hoc dlgnatr ntao, tol-
ltr dyfflas de aqarw Elvaoe in
Nadir, seu pncto Lno oppo.

Jxa Now. attrao solis ru tra
ad attraoe Lne e ut 1 ad 9. jxa
Domkeu ut 10 ad 51. hnc & Sol
& Lna st in ojoe vl oppoe, aqe
in Z & N forti, altrahentr qa fa
vo utrsqp mtua; unde e vhntiores illi

estus, vulgò Spring-tides. 70, vò si
Luna sit in quadraturâ v: g: Q. tunc n
sol attollit ubi Luna deprimit, de=
=primitque ubi Luna attollit; unde
minor tumor aquae, & estus illi, vulgò
neap tides appellantur. Jam si sol
per se attolleret aquas ad altitud: 1 ped.
11 pol. Luna attolleret 9 ped. 7 pol. quando
vò 11 ped. 7½, quo vs eo major e, quo
propius accedit ad terram scil: in suo
perigeo.

71 Ds. hinc estus erunt majores prae=
=ce in novi-luniis & pleni-luniis:

ai hoc ō. ſit. r. —

R. Dis. min. ō ſit pp̄r aqarū librao͡e l. sc, cr. āqo mtū sibi im=pressū, alqdiu retnre slent, qd ō ni rvlr ostbs ſist nvi-lnia ad smū ſrvnit. —

Ds. 2o Hnc ste qad sol & lna st in ōjoe dbrent ee ost, aqles: ai est, ẋ ōjoe in oqinctiis mjres st qo qr ẋ eorū ōjoe in Troppcis oriuntr: r. —

R. D. maj. si c. sint pria e sc, cr, hic ā ō st: rō n mjr e flc, aqe, qo mjr ē erib, in qo und lao͡es ia

diſſndit: ai in æqinctiis mjr ē crās,
utpè sb æqre, qp in Tropicis: 2 oῶ
msci est, illi st, qi in noi-lniis &
plni-lniis æqinctialibs õgunt. –

Ins. ai in æqinctiis õ st æqles.
— Dr. ans. mjres vlgò st paulò
antè æqinctiū vrnū vl pst autmn

R. hoc īdeò acdre qià sol pro-
-prior ē tre hyēe qp æstae, ādeoq
mjr ē inæqas attraōis solris. –

Obs. tn est, illos mjres ēe, ubi
Lna propnqior ē Zenith vl vradic
alcujs lci. Lna vrò nstro Znth in
signis brealibs ē propnqiòr, vnde ē

R. N. Sql. ocea, n̄ sb tropco
Capr. lngi, ad oriē porgtr, undē
citr, dno altraoē ẍcpitr. sb cancro
a brrand incrsbs propedtr, dnc
propi, lra accessrit.

Ds. 4ª Qão vs unta solis & lnæ

has agtaões in aqis mris æcitat,

adeóqꝫ m̄ in atmâ inrjâ, dbret

obsvri alqa vriao in osclao

pndli: ai ō: r

R. ut effus alqs sit snsblis vl

ut tollatr æqbriũ in xpris statcæ

&c, rqri mjrẽ vĩ qꝫ proce legꝫ

statcæ æquunt: sc v: g: sit Bilanx

in æqbrio ꝺ 4000 gr. si ẏti oppo

unũ gr. addas, tl, effus siblis pr

: cptr. jm vò jxà crew. ima viriũ

solis & lnæ ē ad grvaẽ ccũ sp

tra, ut 1 ad 12868200, adeoq in

naoe loge mri qo sit x ad 4000.

hoc vs vè; lct. æqua, suffit ta ad

aqas ad 9 vl 12 pd. Elevandas qua

D grvas sb aqre sit ad grvae

prope polos ut 2015 ad 202, &

præa aqaor altior sit. Polis cretr

114408 pd. ; in aqario grvas mi-

nuatr 202 pte, ad 114408 assr-

gent: 2 minuendo illo grvae

$\frac{1}{12868200}$ pte, ad plsq 10 pd altæ

attollentr.

Ds. 5° hoc vs Lno aëre ad se

attolleret, aër vò per longres columnas
premens deberet mercuriu in tubis
torricellianis stagnante efficere.

R: Dis. ans. si c. sint pria e. sy
sm vò aër cois. e. erectr 11000es levi
mercurio; e diversas pressiois ex illo
inorto alnis e. eet. sensblis, pro
ipsie qua aër nec. modo assrgit sb
mediaro, ut sit in eqlibrio c. aëre
90 distate, & omnis vis se ad gro
etate prpr. attraone line obliquo im
pressa. aqa m e sit cus videtur
fluidu, & late stagnet, lbre recipit
attraone lnare, & ejs vi pr mtaone

sitûs ꝑtiu felmè cedit.

Vid. ō littora sæpè ādeò à mari
medio remota, adeò accelera & flux-
usa sit, ut mare multò prius se
deffrdat aut ōtrahat, qp in flumnb
ostis ꝑciati, hinc fit ut ō sin
alia sit ostium hora in mri medio,
alia in littore, vnde ut in littorib
sb eodē meridiano ꝑstis idē alio
ꝑre est, ōgat: itē ut flux in
idē litt brevior sit aut diuturnior
reflu, m ut alia flumina ostiū ... ,
alia mpis, admittant. hæc ad ostia
Tagi ad ... Britanicū & cretrh

& dim. pstq. lna fe medianð tensit
sinio ostium oceanus obtract. ad os-
:tium S. Maclovii & Burdegalæ
horis 6, ad ostium Thamsis h. 12.

Docet Duhammell auctor Philo
novæ & veteris omni 12 h in Gar-
:umna prope Burdegala diffundi;
quo fit, ut ocea, novo ostio, & Ga-
:umna veteri sub intumescant. ad-
:diffidit mre ad ostium Grmnæ h. 7
fluere, 5 refluere, & qua ect, e
fluminis alvei, est, ad 180 fere
mil. in ea diffundi slet, ô in Tha-

-mes, vx ultra 50 dscndatr.

actnia igia cstnis scios al-
ges ad propios Galliarū port
mitt; qd est, observent. ab his
opertū e estū matutinū o sȳr-
no in mltis lcis fnre ee; in
aliis vo oqle; ite, in sglis ōs-
tbs mare mne pris spao flu-
ere qd esfluere; deniqs in nolnis
& plnluis brevi, ee invollū pris
in est, pxos, qp vus, qravas.
inde o ser proce retrdatr est, qo
lna sit mdiam attingat.

Qaō. dr estw. qam qp $\frac{3}{4}$ fores pro

cednti. estu trdre, ō ilgr qd est,

vsprn, v. g. tntō trdiōr sit mtutno

pxē procedntis, sc. qd est, mtutn,

v. g. uni, diei tntō trdiōr sit estu

mtno diei procedntis. bra estûs,

dr pus, qo mre alsmiw ē, v fluee

jm desiit. bra poetûs, da bra

estûs in alqo prtu in ipso nolnio.

c. parbs est mjres st mnē qp

vespre à nolniis ad 1ª grawa,

hnc ad plnliw est, mtri mires

et vspznis. idē dē estb. qē ā.

Plinius qd nolim accidunt è jdcndi

Ac, & stagna, imò totu mare

caspiu, qd ab orie in occdē extē

bropeos prragtr ostu. cret, qia

nimis angsta st, & extra qis se-

mita, ut hunc effu preciant.

mare Mediterraneu (qia extra line

trante ab orie in ocdē ædr) or-

tu ō het insbile protrgs in Inu

Veneto, & in Palestine, & Syrie, orj

ē illac ab austro in borea sats

prrgatr. ē Oceano qdm Gadbs ō-

j ngtr, Id obqe & nō prt est, ab

eqre propagatr; unde est, verb

ipsu fretu tm pario ingrdtr. Ad

mare nigru a Lno trmte mn

eemtu nmsqe angstu, & egru in-

:lis aqeoru mlui obstalbs, & Bal-

:tcu adhc mgs a Tropicis dstu,

& ft fretu angstsmu oceao jnctu,

estu insble o hent.

Ocea, 7trialis ubra Scotia vx

illu prcepit estu, ptu qd a Lno

smta plrmu dstet, ptu qd insle

Britnce est, propgaoe impdiant.

In mari Hudsonio o nmis 7triali

so latè patenti reperitur est, q̃ tñ nunq̃ 55th lat̃ne ēxcedere vdr:

Art: 3tius

Fontium Fluviorumq̃ origo.

Volunt alq̃ fontes oes atq̃ fluvios ex mri oriri & ab illo fluere p̃ tubos qosdã sbtrneos. — at 1º viẋ ilgi pt qoo p̃ hudi tubos ad lca adeo remta à mri tnta aqo cpia p̃venire pit, ut amnes ingentes p̃petuò alat. — 2º. si hoc ità se heret lca mari pxa fontibs potsmũ scaterent, qũ aũ

xpriâ ōstet. ——

Qrê Rōo ō coi snhâ recenti-
-orū, fontes ste plerosqꝫ pluvis
nivibsqꝫ solutis & aliis vapr bs,
qorū mxa cpia in montbs ꝑpuo
cadit, orignē sā debre. — Dxi
ste plerosqꝫ, ō n̄ cr. qin algi fnte
x mri ꝑ tubos sbtrnēos dervri
pint; hnc algi fontes mri venre
salsi st, alii m ostuante mri
efluunt, recēdnte decrescunt. —
Īd & hoc hbntr C fontes ōlos a
viis flmnbs ꝑ ductus sbtrnēos

profsci poe: hinc flmnbs xiurda-
tls puter veni iiti & cello aqs
implentr, iisde detumsenlbs aqe
illo puteorū vl cellarū in flumn
relabuntr: hinc ubiqz in plnitie,
ubi alti, trā eruitr, ser aqa oriit,
qo ō vicino flmne eande ppuo alve
hrat.

at fntes qi in montls ocor-
runt, & flmnbs probent orgne,
ō aliūde qs ē pluviis, nivibs, aliisqz
vaprbs oriri vdntr, idē de pleriqz
aliis fntbs dendū, qi in Campis

erumpunt & à fluviis longè abst.

Respons ā rōe, qiaaqa illa qo ex nubs pluvisq resolutis & vaprbs decidit, & sese intrà trā mea, insinuans p tubos qosdā & qsi cnales ad crtas qasdā scaturignes deductā, abnde, sffit ad hudi fntēs m pennes alendos & nutriendos.

Crtè vir clarsmū Peraldus inito calclo reprit Parsiis ex pluvis niubsq tm aqe sglis annis decidere, ut ad tota trā sprcie, ad 19 dig. altē ītegndā sffiat. Dein alius

obs.vaoibs 84 mdios Parsienses

gorid sgli 2 aqe cubcos pd. ȝrent,

p tubu uni, pol. ladnis 24 h. un=

ello effluere operit. itaqꝫ e vaso

aut recepttclo qd fie 30000 aqe

mdios, aqa p totu annu ad uni,

digti ladne, eqbli mtu profluerel.

His rite xploraus qm spai

pcurrat Sequana ab ipso fonte,

priusqꝫ riviu aliunde xcipiat dime=

tire vhiat; qd 3 fere leucas in lngd

& 2 in latud patre advrtit: adeout

plura qe hoc tro spaio qtinnis ri=

gat; mlto sit ubrior qe huys flmnis

pstlat alve, qd calclo fcto dmstrui
qre si totu illd tro spaiu lcus cet,
cujs profnas est 19 dig., dm uno-
-qoqe anno plvie in unu clcto sp
-gdtant, lnge mjr aqaru cpia
ex iis prodiret qe p fluviu segno,
flxu derivatr, adeo ut qd ex hisce
in aliâ lca sbtrnea se recipiat, aut
in vapres abeat.

de qbs liqet nives & imbres,
prorti si vapres dejas, qoru inge
cpia, in montanis prorti regiob
subâ pestae decidit, ut copiâ notide
flmnbs & fontbs aqe abrde sbmnstr

adeoqꝫ nře õ ẽ aëris ĩn aqꝫ ĩversioẽ
ẽ aẽre, vl aqas mrũs ꝑ sbtrneos
ductus sbeuntes ẽ aliis ĩmrsci. a-
te illa herda ẽ vaca aleŷs effus,
qã ꝑstã effus ꝑnr, qã sbtaã, ttr,
auctã vl immnutã effus ĩdntidẽ augti
vl immnuitr, sd ita se res hct in
nã antiã: ?.

Notat Dñs Barlow fontes qi ex
fontbs erumpunt, qꝫ propres st mntiũ
ĩmaribs, eõ citi, ꝑst pluriã aqis sꝑ-
-plri, eõqꝫ citi, evacuari: eos tn qi
orgnẽ sã hent in humliorbs mn-
-tiũ ptbs trdi, qdm aqas recipre,

sd diuti, melto fluere. illos dnq; qi
ad pedes montiu oriunr, ser. fre pe-
:ennes qos in estae agaru. dermn-
:ta patiantr. sc si aqa in vas undq
pforatu & arená plenu cpse infu-
:das, citi, aqa illa, qe in spacii pte
ōnetr, effluet; qd. ā aqa fuerit in
profundie vsis pte recepta, sct entis
illc defluit, sc m̄ melto diuti, perdu-
:rat effluere x foramnbs humliorbi;
qe ā et in fndo vsis foramna, ppiū
fre fluere pservant.

Ds. 1o Ixa exprim Dni Delahire 2
ficus folia inra 5 h. 2 aqe drchmas

ebibrunt, ardente sole: vid. plima hu-
Di expria in plntis acta ab Hales: o
pluie vix plntario vgtaoi sfficit.

R. N. coad pluia n oes pls ē, qᵖ
pstlant flmina. Dein. ros aliiqᵖ va-
pores vgtablia plimū nutriunt.
Dnqᵖ vgtblia oa tm aqᵉ o exgunt,
qm aqsa qeda, proⁱ o soli aqᵉ
imergunt.

Ds. 2º Pluie nnqᵖ ultrā 16 pol. t
imò jxa plerosqᵖ o ultrā diminū pede
tra penetrant: 2. —

R. Dis. ans. ni psid occrrat
tra rarior & sprgsa e. sc. cr. o

tra porsa: mltis in lcis in kunc fne
occurrit, qo aqp alti, ebibit, imo in
trā soldiōe solis ardore plres fiunt
fissurae; dnqp talpae, aliaqp insecta
minra m in infimis trae strais mea,
effodiunt, pt qos aqe pluviales p
mntiu delvia vl trae specie illac
delae se snsu insinuant pt 1a traces.
sta & pt straa spngsad arnsa, dnc
in argilla, aliamve tra sibi impervia
incedunt, ubi in receptclu clgunt &
scaturiunt. crtē alqt diebs pst cpias
imbres sppe sbtrnei, lapidicno &
puter aqâ stillant, & ē latrbs pro-

ſnde, aqe gutti decidunt. qd pluvias
alcubi tra solusq penetrare dmstrat.
incredble e m oes in vpres flvi aut
plntas nutrire, prorta brumali
pre. ee a sb tris aqarw recp-
tela istat, n in fonis prfndsmis
aqe ipso, imo alqao trrentes sb-
trrnei occrrunt. Urnaores m pssd
alvros aqe dulcis, & flvios in mri
e latrbs propc fndw erumpentes
sb aqis salsis demirantr.

Ds. 3º Plra flmna sepe e eode
monte oriuntr; v: g:, Rhodn & Rhen
in 4 leucas e monte S. Godardi,
nc procl inde Danubi: id pluia
in mnte decedns tot flmnbs osfsit:r.

R. D. min. & aqe è egioibz ven
p tro straa illic fernr (- sc, cr. -
flvii è montiu èdclz orintr, qa
montes nubes frangunt, & in se
deducunt. Petro ā canales seu ca-
:trctas anfractuosas xcvaās hent,
p qas aqe incdnter dglabnr. -
montes ā alii trâ ō saxo. ā stnt,
& horu ea ē strctra, ut fontiu
orgni ~~ut~~ miru in mdu insuviant,
in qe uiu dstrai cdnr: straam
tro arglle vrie dspsta ser hent
qeis incmbit tra vl arensa vl to
:pho slis, vl ex lapdbs malè coa
:mntais: plura ir feli ad traarglsa

pentrant, & sup ea alveu sibi pa=
rant. certe tra fluvis substraca ae=
glsa ee slet, & ei tra arensa, q, il
ste prosa incumbit ut ex ipsis ostat.

Ds. 4o. Fontes quoq in ipsis mn=
tiu smarbs scatriunt: ilgi a o
pt qa raoe illi ex vprbs & pluvis
centr.

R. fontes nuq in mntiu smai bs
scatrire, ni ubi montes xcelsres sup=
emnent, ex qbs aqa dilabatr, & ad
ea cursu alure, unde pris descendrat,
adeoq ad mntis veni smae pr de=
tus sbtrneos protrudatr. —

Ds. ult. In qbsda trr leis mgna
st flmna, tmosi raro, aut nsq in iis

regiolis pluat, ut in Egypto.

R. flumina ipsorum fontes in regioibs reperiri, quas longior imber perfundit, sic Nil, cujus origo e in zona torrida, circa solstitium exundat, quod in zona torrida eo pre ingens pluviarum copia decidat. Eadem e ratio Tigris fluminis et aliorum quorumdam.

Finis.

Dedit Deus his quoque finem.

Troy flam'd in burnish'd gold & on the Throne
Arms & the man in golden cyphers shone.

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